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Greater Curtailment of Production Is Necessary During October to Make Code Effective

By ANDREW M. ROWLEY

FURTHER substantial reductions in crude oil production are necessary if allocations set by the Federal government under the code for the petroleum industry are to be made effective. The daily average output during October will have to be considerably less than the figure of 2,338,500 barrels determined by Secretary Ickes because production during September was in excess of allowables for that period. Under orders issued by Secretary Ickes as Oil Administrator excess production and excess withdrawals from storage during September must be deducted from October allowables, and the same policy, according to the announcement, will be adhered to strictly during subsequent months.

The industry probably would be in a better condition both as to crude oil and refined market price structures if more attention and effort were directed towards bringing crude oil production within the allowable limits and less to the matter of government price fixing. Uncertainty regarding the latter has weakened the entire price structure while production above allowables has permitted refiners to continue to run greater quantities of crude oil to stills than actual consumer requirements warranted. Piling up gasoline stocks at this season of the year is one sure way to undermine the price structures and prolong the arrival of the time when the different branches of the industry can operate on a reasonably profitable basis.

Price fixing by the government is fraught with many dangers. In addition arbitrarily fixed prices could not be stable as long as production was out of line with actual consumer requirements and as long as excessive stocks of gasoline and distress gasoline in the hands of smaller refiners overhung the market. It would seem as if the logical method of approach to the subject would be first, to devote every effort towards reducing crude oil production to actual consumption and to limit runs to stills at refineries to consumer demand. Then, if proper prices did not result, the government could adjust this matter with a greater possibility of success than if action were taken before the output of crude oil and gasoline had been reduced to a basis which would insure stability of the price structures.

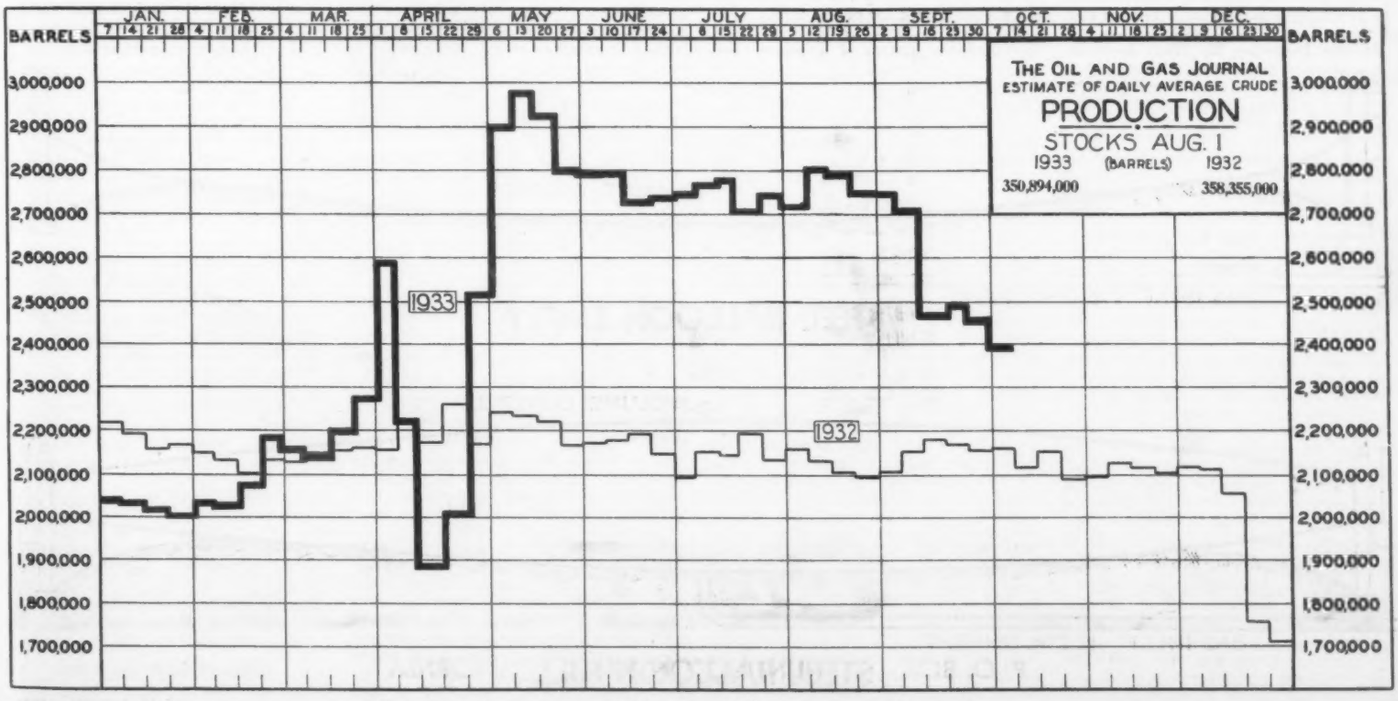
As this is written (Tuesday night), the best available information is to the effect the Government may announce a price-fixing policy tomorrow (October 11). It is felt a price of $1.11 per barrel for 36-gravity Mid-Continent crude will be established, although efforts are being made to lower this price.

Crude Oil Production in the United States

Estimated daily average production for the week ending October 7, and a comparison with previous week and one year ago, follows:

	Oct. 7	Sept. 30	Oct. 8, 1932
Oklahoma—			
Oklahoma City	142,475	212,500	69,640
Seminole-St. Louis	120,675	102,040	114,320
Remainder of State	215,630	213,130	196,955
Total Oklahoma	478,780	527,670	380,915
East Texas—			
Lathrop	206,005	211,816	149,953
Kilgore	149,733	153,957	114,895
Joiner	133,586	137,354	129,310
Total East Texas	489,324	503,127	394,158
West Texas	127,638	127,645	169,987
North Central Texas	76,241	74,905	73,705
Texas Panhandle	47,334	44,577	41,716
East Central Texas	45,766	46,239	54,236
Gulf Coast—Texas	183,942	185,468	134,222
Southwest Texas	45,733	46,745	57,948
Total State of Texas	1,015,978	1,028,706	925,972
Kansas	116,025	121,635	99,540
North Louisiana	25,590	25,795	30,415
Gulf Coast—Louisiana	47,724	47,835	33,761
Arkansas	32,980	32,440	34,025
Eastern Fields	128,000	126,000	115,000
Rocky Mountain area	81,830	81,310	73,761
California—			
Santa Fe Springs	47,500	47,250	58,000
Long Beach	60,500	57,750	68,000
Playa Del Rey	10,900	10,150	15,500
Elwood	14,000	14,500	13,500
Kettleman Hills	59,000	63,750	58,750
Remainder of State	286,850	282,500	257,000
Total California	478,750	475,900	470,750
Total United States	2,405,657	2,467,291	2,164,139

Decrease 61,634 Bbls. Daily.



Vapor Gathering Systems With Steel Balloons Reduce Evaporation and Corrosion Losses

By L. G. E. BIGNELL
Petroleum Engineering Editor

Production, transportation and refinery operators have known for many years that if they could keep fresh air from passing over crude oil or products of petroleum that evaporation would be reduced to a minimum. One of the first steps toward bringing about this saving was the making of the gas tight decks for small wood and steel tanks. This gave some benefit and reduced evaporation but there was still much to be desired and to get better results the floating type deck was introduced by John H. Wiggins, consulting engineer, Tulsa.

The next development along this line was the breather roof. These tight but flexible roofs were so designed and installed that they move up when the gas expands and sink as the gas contracts or the fluid is withdrawn from the tank. The breather roof is provided with suitable relief valves so that no damage will occur by excess pressure being accumulated in the tank.

With any system there has been some exhausting of vapors to the atmosphere and such vapors were valuable because they contained light hydrocarbons. The ideal system would be one that would be vapor tight at all times and provide a means of taking care of any expansion or contraction of gas or vapors within the system without discharging any of it to the atmosphere. Any gas or vapor lost from a system must be made up at some time with fresh air, which in turn must be saturated with light hydrocarbons and in this way some portion of the crude oil is transferred from liquid to vapor phase and lost if the system is not closed.

Several years ago John H. Wiggins conceived the idea that a steel balloon could be built and placed in a closed system of large pipes connected with the tanks in a tank farm or refinery and take care of the expansion and contraction of vapor or gas due either to thermal expansion caused by the heat of the sun or actual liquid displacement in the tanks by pumping fluid into or out of them.

In the December 25, 1930, issue of The Oil and Gas Journal there is published a story of the early development of the steel balloon. The first installation was made at a refinery in West Tulsa and is still in satisfactory operation. A second steel balloon was installed early in July, 1933, at the plant of the Globe Refining Co., McPherson, Kans. This balloon is used with a complete vapor saving system connecting together six gasoline and two crude oil storage tanks.

Mr. Wiggins is now installing a third balloon system at the central pump station of the Reagan County Crude Oil Purchasing Co., Big Lake Field, Texas. This will consist of breather roofs on five 80,000-bbl. capacity steel tanks built by the Chicago Bridge & Iron Works and one 150-foot diameter steel balloon built by J. H. Wiggins.

Steel balloon 128 feet diameter with capacity of 100,000 feet of gas installed at plant of Globe Refining Co., McPherson, Kansas

Kansas Installation

The system installed at the Globe Refining Co., McPherson, Kans., consists of a steel balloon 128 feet in diameter with a shell 4 feet high. The capacity of this balloon is approximately 100,000 feet of gas and, when filled, the distance between deck and bottom is about 12 or 13 feet. When empty the deck rests on the bottom over most of the tank.

The deck is made of 16-gauge sheet steel and the bottom of 14-gauge steel with the shell made from 14-gauge steel also. The accompanying sketch shows the general design of the steel balloon. The assembly in the field is done by electric welding.

The principle upon which the steel balloon is based is the well-known tendency of a vessel to try to assume a spherical shape when subjected to internal pressures. Operators familiar with steel tanks have long recognized the tendency of the side sheets to move upward and cause the bottoms to assume the shape of a saucer when the tank was subjected to excessive internal pressures. "To swell up like a balloon" quite completely expresses the general appearance of a steel tank under high pressure.

Mr. Wiggins' idea is to take advantage of this general characteristic of steel to bulge but to control the movement so as to use this principle in designing a vessel for the storage of gas or vapor. In a general way this has been accomplished by welding together sheets of steel to form a flexible deck that is attached to the upper edge of a steel side ring and permitted to rest, when the tank is empty upon the bottom. The bottom is also welded and laid upon an earth grade properly shaped to accommodate the natural roll that is assumed by the flat steel disk and the bottom is attached to the lower edge of the upright circular side sheets. This general idea is shown in the attached sheet.

Vapor System

The tanks making up the system in which the vapors are to be saved are connected together with large lightweight iron pipes. These pipes, made by welding formed sheets in the field, will vary in diameter and the size increase as they approach the steel balloon because the volume of the gas to be handled increases. The gas or vapor is conducted into the steel balloon at a fixed point in the bottom and discharged there. As the gas under slight pressure enters the steel balloon the deck will tend to lift off of the bottom and bulge upward until the balloon is completely filled.

To prevent rupture, the deck of the steel balloon is provided with a volume control valve and excess gas can escape to the atmosphere through it. However, in the ideally designed system there should never be any vapor escaping from the tanks or balloon and any movement of the vapor that may be necessary will be between tanks in the system.

To understand this system of handling vapor let it be assumed that the steel balloon is empty. As the heat of the sun strikes the steel from which the various storage tanks are made there is a tendency for the vapor in them to expand. It has been found that under summer heat some tanks will become hot enough to actually vaporize the light ends of the fluid in them and in this manner become partial stills.

Without actually heating the oil itself to high temperature the gas or vapor over the oil will absorb heat and expand. If the tank is one of the breather roof type this expansion will lift the deck and bulge it upward and outward until the change in volume of gas has been accommodated. If the increase in volume is too great to be accommodated in the tank the excess vapor will leave the tank through the gas line and pass into the steel balloon. In

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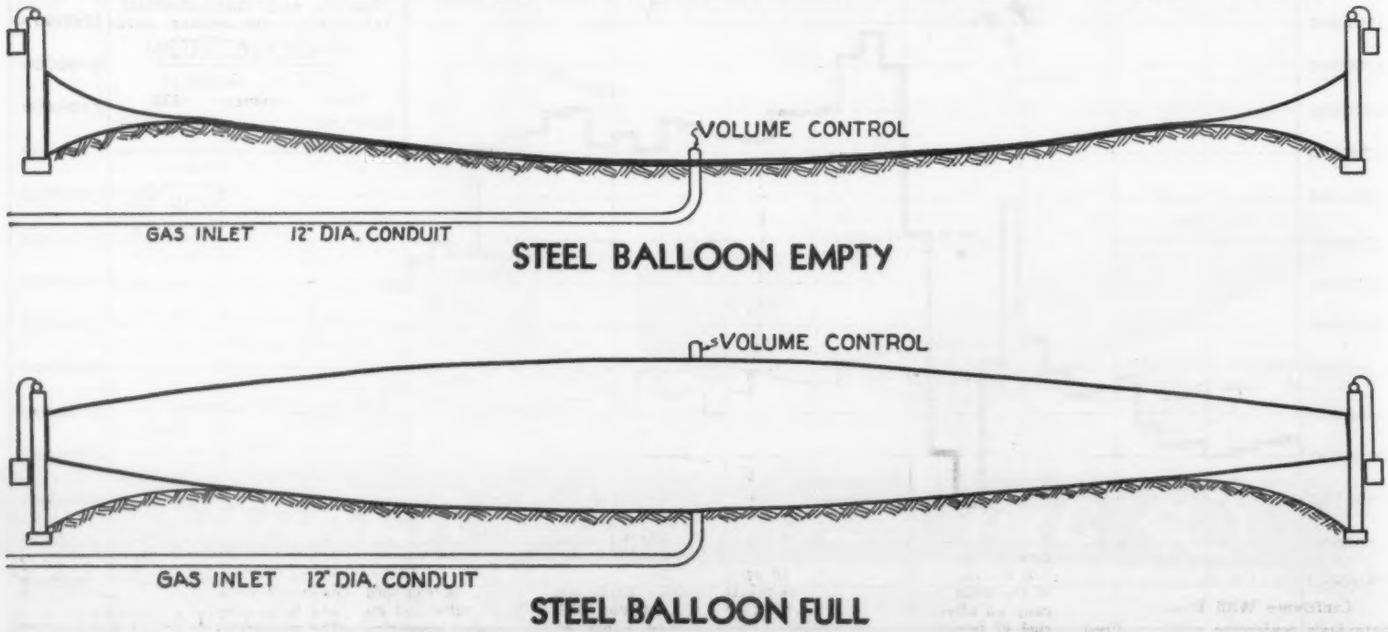

Diagrammatic sketch showing principle upon which Wiggins steel balloon operates

Constitutional Questions and Lack of Facts Delay Decision on Government Price Fixing Policy

By CHARLES E. KERN
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Oct. 9.—Delay in fixing the price of gasoline by Harold L. Ickes, Secretary of the Interior and oil administrator, is laid to the failure of oil men in presenting more promptly facts upon which he could sustain his action. Instead of facts, it is said here by those who are closest to the oil administrator, they have presented arguments.

When General Johnson and his assistants were hearing oil men on their objections to the code as prepared by General Johnson they were constantly admonished to state facts and not arguments. Now it is claimed the records lack facts and for that reason the order of October 1 was issued by Secretary Ickes calling for facts to be given him by the fifteenth of this month.

This order was widely circulated among about 1,500 oil companies and oil men. Perhaps half of those given the order have replied to the specific questions concerning stocks, reports by refineries, crude petroleum production, gasoline storage, transportation, etc. When this information is at hand the Secretary will be ready to act.

Secretary Ickes insists on information because of suggestions that have been made of possible court procedure. There have been many oil interests that have suggested that the legislative powers of the President for price fixing are subject to constitutional objections and Section 6A of Article 3 of the oil code modifications, it has been asserted, is especially susceptible of constitutional objection. This is the section relating to price fixing. Any oil man, even the owner of a service station, upon announcement of price fixing could, it is said, go into a district court and ask for a restraining order on the ground that Secretary Ickes' order is confiscatory of property. The solicitor of the Interior Department would prefer having such persons come before him with their arguments before they go to court if that is to happen, but whatever is done Secretary Ickes wishes to be fortified with the facts upon which he is to act.

Expect Order Soon

Predictions wholly unofficial were made today by persons familiar with what is going on here in oil administration circles that probably by the end of a week or 10 days or sooner Secretary Ickes will issue his price fixing order.

Work is still going on to complete the interpretations of the oil production and oil refining codes but differences of views have thus far delayed completion of that work which may soon be announced.

The Planning and Co-ordinating Committee expects to complete its lists of state committees for supervision of the industry in the very near future so that its operations may function in all oil fields.

Reports received here show that proration allowables for oil production are being kept within the maximum.

Conference With President

Saturday's conference with the President, was attended by Secretary Ickes and his legal aides, James A. Moffett and M. L. Benedum, administration representatives on the Planning and Co-ordinating Committee and Amos L. Beaty, representative of the industry on that committee, former president of the American Petroleum Institute and an authority on petroleum law. The possibility of legal challenge of governmental price fixing was understood to be a main subject of consideration, following protests received during the week from several major companies opposed to it.

The recommendations of the Planning and Co-ordinating Committee were also understood to have been considered in the light of an adverse report from J. Elmer Thomas, technical adviser to Secretary Ickes' administrative board, who has since resigned to attend to personal affairs. It was further understood that the committee's price recommendations were criticized in a technical report prepared by E. B. Swanson, chief petroleum economist of the Department of the Interior, and J. W. Frey of the Department of Commerce, two members of the petroleum administrative board. In this connection it was recalled that the schedules are lower than the figures given in the report of the Federal Trade Commission as to the average cost of recovery in the Mid-Continent in normal conditions.

Consumers Ask Postponement

The NRA consumers' advisory board, in a letter to Secretary Ickes, asked that "any government steps toward price fixing in the oil industry be postponed."

The letter, signed by Mrs. Mary Harriman Rumsey, chairman, said that since June 1 the consumers' bill for petroleum products had been increased at a rate of more than $500,000,000 annually, while wages in the oil industry had increased at a rate of not more than $125,000,000 and possibly much less.

"This means," she said, "that the recovery program as envisaged when the recovery act was passed, has been moving at high speed in reverse so far as the oil industry is concerned.

"The expansion of purchasing power through increased wage payments by the industry has been far more than offset by the increase in the consumers' bill for its products."

Approves Burner Code

President Roosevelt's final approval of the code of fair competition for the oil burner industry with amendments not embodied in his former approval was announced today. A statement issued follows in part:

A code of fair competition for the oil burner industry has been heretofore duly approved by executive order of the President, dated September 18, 1933. There had been contained in said code as submitted, and in said code as revised for public hearing, the following provision:

"(b) For the protection of the public

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Repressuring Wells With Air and Gases Is Proved Successful in Pennsylvania Field

By R. C. CONINE

BUTLER, Pa., Oct. 7.—Reclamation of failing or abandoned wells through repressuring with air and gases was outlined before the Pennsylvania Oil Producers Association at a meeting here this week by C. C. Hogg, general manager of National Petroleum Co., and Herman Little, chief engineer of South Penn Oil Co. P. H. Curry, president of the South Penn company, who is regional chairman of the production committee under the NRA, commended the selection of M. L. Benedum, Pittsburgh oil man, as a member of the national committee who would have a keen interest in the welfare of this section. The association voted to protest to Washington against the proposed rates of pay for drilling crews on the ground that $1 an hour for drillers and 87½ cents an hour for tool dressers for an eight-hour day is exorbitant for this locality.

Example of Benefits

In his discussion Mr. Hogg recounted that in 1922 National Petroleum Co. drilled seven wells on its Grand Valley property increasing production from the lease by 5 bbls. daily. Production dwindled rapidly, however, and abandonment appeared inevitable. At this stage Mr. Hogg asked for an appropriation of $5,000 to ascertain whether or not recoverable oil remained in the sand. He spent $2,000 of this sum in obtaining cores and analyzing them and these tests revealed an oil content of 12,000 to 17,000 bbls. an acre. Gas pressure in many of the wells on the property was practically nil after a comparatively short period of production, so repressuring with a mixture of air and natural gas was resorted to. An old well which had been producing a tenth of a barrel daily was cleaned and subjected to pressure from two sides, and this well, after a year and a half continues to produce 2 bbls. of oil a day. Mr. Hogg predicted a greatly increased recovery from the sands of this region at a lower cost favorably comparable with that of the Bradford flood water operations.

Mr. Little urged the operators to give air, natural gas and/or inert gas (exhaust gas) repressuring a trial, stating his conviction that many of the properties would show a favorable response. Too many wells have already been abandoned in this section of the country, which, if just in fair producing condition would make available a large source of recoverable oil, Mr. Little said.

Procedure Followed

At the outset of a new pressure undertaking, Mr. Little explained, his procedure is to establish elevations of the sands with respect to sea level and prepare from the well records a cross sectional picture of the sand with side elevations of the wells topping this sand. In the field the wells are pumped off and rock pressures determined, as well as the open flow of the wells, specific gravity of the gases and water, rates of pumping off and the pressures at which the wells when shut in refuse to produce oil. Decline curves are plotted for farm areas, and where sand samples are available these are studied. Mr. Little stressed the importance of core samples.

In connection with the methods of operation, Mr. Little said: "The wells that are available for pressure holes are sometimes shot and cleaned out, and packer usually set at such a location that it is reasonably certain that gas will be inserted in the sand that is to be repressured. Each pressure well is equipped aboveground with a check valve and an orifice flange plate for gas measuring purposes. Lubricated stop cocks are used for regulation of the gas. The gas measurements are made with indicating "U" gauges installed over the flanges. Recording orifice meters are desirable, but investment features on most properties do not warrant such expense, and very satisfactory results can be obtained from inspection readings taken and recorded by pumpers. The gas is started at a pressure that just permits its entry to the sand and is slowly increased with a constant check being kept on the input volume as compared with the production of oil for the area which the pressure well is designed to serve. This, of course, is maintained as low as possible. We have properties operating with an input ratio as low as 500 feet per barrel of oil, but the average ratio on successful properties is between 3,000 and 5,000 feet. Other properties run as high as 10,000 feet per barrel.

"The major portion of producing wells are also equipped with orifice flanges and periodic tests of the flow of gas from these wells are also made in order to determine the oil-gas ratio and fluid-gas ratio (which includes the water and oil in volume in proportion to the gas). By this method it is possible to keep check on the field for gas movements in the sand and then anticipate possible channeling or short circuiting of the gas before such conditions can really get much headway. When such conditions do appear, control methods are exercised on the input gas and differential pressures are decreased at the producing wells by raising the producing pressures on these producing wells showing signs of channeling.

Wells Pumped Off

"The wells are regularly pumped off and the sands are rarely kept flooded. The pumper becomes the main cog in the operation, his duty being to pump the producing wells and record the daily volume being inserted at the pressure wells. The measurements of the gas from the

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Petroleum Engineers and Natural Gas Operators Hear Interesting Papers at Dallas Meeting

By L. G. E. BIGNELL
Petroleum Engineering Editor

DALLAS, Tex., Oct. 7.—The annual fall meeting of the Petroleum Division of the A.I.M.E. has just closed here after a two-day session which was attended by about 125 members and guests. Dr. F. M. Becket, president, and A. B. Parsons, secretary of the Institute, were present at Friday's meeting and at the banquet that night.

The outstanding paper of this meeting was the one presented by Prof. W. K. Lewis, head of the department of chemical engineering, Massachusetts Institute of Technology, Cambridge, Mass., on "Physical-Chemical Relationships of Hydrocarbon Gas-Liquid Mixtures at High Pressures." This paper deals with the behavior of hydrocarbons under high pressures and temperatures.

Professor Lewis' paper presents the results of the work done by him during the past several years and the paper is prefaced as follows:

"During the last decade the petroleum refinery engineer has made great progress in achieving a better understanding of the physical behavior of hydrocarbon mixtures, with particular reference to their pressure-temperature-volume relationships, the mechanism of the evaporation of liquids, the condensation of vapors, including the changes in composition, and the heat effects accompanying them. With the new insight into the mechanism of movement of oil and gas through the formations in which they occur, achieved by the production engineer, it is clear that the latter will need to utilize in the solution of his own problems much of the information outlined above. It is the purpose of the paper to outline those portions of that information which seems most certain to prove of importance in production work."

Application of Production

This paper will appear in an early issue of The Oil and Gas Journal with all diagrams. While Professor Lewis' work has been largely with the problems confronting the refinery chemist there is a great deal of valuable information presented in this paper for the petroleum engineer. The basic facts and principles stated can be applied to numerous production engineering problems and it is believed that they will be, and in a reasonably short time this method of estimating and studying the conditions of oil and gas in an underground reservoir will be quite generally used.

Professor Lewis stressed the need for the engineer to deal with facts and not with assumptions. He clearly demonstrated that with certain readily obtainable facts to start with the laws covering the behavior of mixtures of hydrocarbon gas and oil at pressures and temperatures found underground can be applied to various problems and accurate results secured.

This type of study will assist materially in determining the relative space occupied by gas and by oil in a formation, the approximate amount of energy available in such mixtures and will permit the valuation of hydrocarbons in place with a reasonable degree of accuracy. The ability to demonstrate these principles before a court of law will assist materially in establishing many engineering facts from which legal decisions regarding property rights can be made. The application of these principles by the engineer will also assist him in planning methods of development and production of the oil and gas to secure maximum recovery at minimum expense.

One new feature of the Dallas meeting was a session, held Friday afternoon, devoted to the study of natural gas problems and their relationship to oil production problems. The petroleum engineer deals principally with fluid problems but in nearly every instance natural gas accompanies the oil and the sponsors of this natural gas session felt that a presentation of papers upon gas subjects would be of interest and benefit to the petroleum engineers.

Leon Pepperberg of Dallas presided over this session and the first paper was presented by J. Chalmers, engineer, U. S. Bureau of Mines, Bartlesville, Okla., in conjunction with E. L. Rawlins, Walter Reid and Dugald Gordon on "Methods of Determining the Capacity of Gas Wells." This was a review of various methods of determining capacity of gas wells and it was followed by a paper by Dugald Gordon, consulting geologist, of Shreveport, La., upon the geologist's conception of the need of accurate measurements of gas well flow to enable them to properly estimate underground reserves.

Mr. Gordon pointed out the fact that old pitot tube measurement tables for low pressure wells cannot be used for high pressure high volume wells. He cited one instance in which the estimate made using the old pitot tube tables were between 60,000,000 and 70,000,000 feet but when corrected it was found that the pressure was about 180 pounds per square inch and the actual flow of the well was about 165,000,000 feet daily. New tables prepared by Walter Reid are available for these higher pressure wells and they should be used to give correct data upon wells of all characters.

C. M. Rader and R. A. Feemster, engineers with the Phillips Petroleum Co.,

(Continued on Page 53)

Some of the Theoretical and Practical Aspects of the Acid Treatment of Limestone Wells

By M. E. CHAPMAN
Production Engineer, Gypsy Oil Co., Tulsa*

Acid treatment of wells which produce from limestone formations has become common practice recently, particularly in the Mid-Continent area and Michigan fields.

Theoretically, any formation which contains calcareous material in appreciable quantities should be benefited by acid treatment. The treatment of sands which have some limestone present has not met with the success that has been encountered in treating limestone and dolomitic formations.

Limestone Reservoirs

The openings in oil-producing limestone reservoirs may be divided into the following general classes:

1. Cavernous.
2. Subcavernous ranging down to capillary.
   (a) Fractured.
   (b) Jointed.
   (c) Leached.
   (d) Primarily porous.

The principal purpose of acid treatment is to enlarge the drainage channels which empty into a well bore, or to dissolve a limestone barrier which may be blocking the ingress of oil into the drainage area of a well. Although the acid may enlarge the rock cavity at the bottom of the well, acid is largely wasted unless it opens or enlarges channels leading into the well.

Hydrochloric acid of varying concentrations is the principal agent used in treating wells, because the products of the chemical action of hydrochloric acid on pure limestone and dolomite are water soluble residues and gas.

Hydrochloric acid reacts with pure limestone, that is, calcium carbonate, to form water, carbon dioxide and calcium chloride, according to the following equation:

(1) $2HCl + CaCO_3 = CaCl_2 + CO_2 + H_2O$

The reaction with dolomite is:

(2) $4HCl + CaMg(CO_3)_2 = CaCl_2 + MgCl_2 + 2CO_2 + 2H_2O$.

Commercial hydrochloric acid weighs about 9.476 pounds per gallon and contains approximately 28 per cent, or 2.653 pounds HCl and 72 per cent, or 6.823 pounds H_2O. Water which is present in hydrochloric acid does not enter into the chemical reaction of hydrochloric acid and limestone. By using 1 gallon of commercial hydrochloric acid and applying weights of each substance in Equation 1 the following results are obtained:

(1A) 2.653 lbs. HCl + 6.823 lbs. H_2O + 3.64 lbs. $CaCO_3$ = 4.035 lbs. $CaCl_2$ + 1.602 lbs. CO_2 + .655 lb. new H_2O + 6.823 lbs. original H_2O.

Weights involved in Equation 2 are:

(2A) 2.653 lbs. HCl + 6.823 lbs. H_2O + 3.352 lbs. $CaMg(CO_3)_2$ = 1.736 lbs. $MgCl_2$ + 2.018 lbs. $CaCl_2$ + 1.602 lbs. CO_2 + .655 lb. new H_2O + 6.823 lbs. original H_2O.

Calcium and magnesium chlorides are readily soluble in water. At 32° F. the solubility of $CaCl_2$ in water is 59.2 per cent and solubility of $MgCl_2$ is 52.5 per cent. With increase in temperature the solubility of these chlorides increases. At 140° F., the normal temperature at 4,000 feet, the solubility of $CaCl_2$ in water is 136 per cent and of $MgCl_2$ is 66 per cent. In Equation 1A the weight of $CaCl_2$ is 54 per cent of weight of water present. In Equation 2A $CaCl_2$ is 27 per cent of water and weight of $MgCl_2$ is 23.2 per cent of water present. Therefore, water from 1 gallon of 28 per cent acid will dissolve all chlorides produced by reaction with limestone and dolomite. In addition to the water which is present originally in acid, it is usual practice to dilute acid used in treating wells. Accordingly, there is little danger that all of the chlorides formed will not be dissolved. This solution of chlorides is then pumped out of the well with the oil.

Laboratory Indispensable Aid

The laboratory is an indispensable aid in acid treating operations. Physical characteristics of samples of formation to be treated can be determined in the laboratory. Also, tests can be made which will determine the proper concentration of acid which should be used and the duration of treatment.

Acid well treatment is not a new operation. More than 30 years ago patents were issued covering treatment of oil wells with acid. Since then experiments with acid have been carried out in a number of fields. The earlier experiments had varying success because of limited scientific control in former years. Recently the industry has employed a large number of engineers. These men understood the scientific problems involved in acid treatment. They varied the amount of acid and conditions of its use to meet the varying conditions. As a result, acid treatment of wells has been more uniformly successful recently, and its use has been greatly expanded. Operators condemned use of acid in many early experiments because of damage to casing and tubing.

In August, 1928, when Gypsy Oil Co. first acidized wells in Oklahoma an inhibitor was added to protect casing and tubing. Other operators also, shortly thereafter, added inhibitors to acid used in other areas.

The experiments were successful, both in preventing damage to metallic equipment of the wells and in increasing production. Further application of acid was discouraged by the rapidly increasing production of the country and the declining price for crude oil. In areas of settled production, many operators preferred to restrict production rather than to increase output on a falling market. More recently acidizing has been invoked to increase the initial production of nonprofitable wells to commercial production, and to continue production from wells which had declined until abandonment was threatened.

Inhibitors

When acid treatment was first attempted, little was known about the use of inhibitors which prevent the attack of acid on metals. The commercial use of inhibitors for protection of metals in acid solutions is a long established practice in metal industries. Investigations carried on along this line have resulted in the development and use of inhibitors which have largely eliminated the acid damage to casing or other equipment.

The steel industry developed many inhibitors for use in pickling iron and steel. Before these materials can be galvanized, mill scale must be removed. Various inhibitors were developed which

(Continued on Page 53)

*Author's title, "Some Theoretical and Practical Aspects of Oil Well Acid Treatment."

Use Two Immiscible Solvents for the Manufacture of Lubricating Oils by the Extraction Process

By MAX B. MILLER
Max B. Miller Co., Inc.

The Duo-Sol Process of solvent extraction for the production of lubricating oils is unique in that instead of employing a single solvent or a mixture of solvents which are selective alone for the naphthenic fractions, two immiscible solvents are employed, one of which is selective for the paraffinic oil, the other selective for the naphthenic fractions.

The operation of the Duo-Sol extraction unit is somewhat analogous to that of a fractionating column except that it is carried on in a liquid phase and depends upon the solvent power of the reagents employed instead of the boiling range of the fractions to be separated. The two solvents pass countercurrently to each other through the system. The charging stock is fed to the center of the system and as it is separated into the paraffinic and the naphthenic fractions these two constituents flow countercurrently to each other along with their respective solvents. Thus the paraffinic solvent is continually stripping the naphthenic fraction of its final traces of paraffinic oil

TABLE 1—RANGER-BURBANK LONG RESIDUUM, DUO-SOL EXTRACTED AND DEWAXED YIELDING 78.4% PARAFFINIC OIL BEFORE DEWAXING AND 21.6% NAPHTHENIC TAR HAVING A SPECIFIC GRAVITY OF 1.045

	Original stock	Paraffinic oil	Paraffinic oil after dewaxing
Gravity	23.5	30.1	29
Flash	450	450	450
Fire	500	500	500
Viscosity at 100	...	...	509
Viscosity at 210	84	62	65
Viscosity index	...	...	100
Viscosity-gravity constant	.848	.803	.810
Pour	...	100	20
Color	...	6 N.P.A.	6 N.P.A.
Carbon residue	...	...	.23

TABLE 2—HENDRICKS LONG RESIDUUM, DUO-SOL EXTRACTED, YIELDING 49.3% PARAFFINIC OIL AND 50.7% NAPHTHENIC TAR

	Original stock	Paraffinic oil
Gravity	16.8	27.6
Flash	455	455
Fire	505	490
Viscosity at 100	...	550
Viscosity at 210	147	67
Viscosity index	...	100
Viscosity-gravity constant	.886	.817
Pour	...	+5
Cloud	...	48
Color	Black	5 N.P.A.
Carbon residue	...	.15

Note—Since the paraffinic oil only contained a cloud, it was not subsequently dewaxed.

crude, i.e., a long residuum or a steam refined stock.

(b) The oil has a high viscosity index and a low viscosity-gravity constant. It is particularly resistant to sludging as a result of oxidation and is extremely low in carbon residue.

(c) It eliminates entirely the necessity of acid treating. The paraffinic oil discharged ranges in color from 4 to 7 on the N.P.A. scale, depending upon the nature of the charging stock, and may in any case be brought to final color by filtering and without the use of acid and/or subsequent neutralization.

(d) It is responsible for maximum yields of paraffinic oil from any given crude. This is exemplified by the fact that the specific gravity of the naphthenic fractions when separated from a residuum will range from 1.035 to 1.06 depending upon the nature of the charging stock.

(e) It permits a yield of high-grade lubricant as great as is possible by prevailing practice wherein oils of a characteristic now common to Mid-Continent crudes are manufactured.

(f) It reduces the cost of lubricant production. This is due to two facts: one, it does not depreciate the value of the charging stock in either of the separated fractions and, two, it materially reduces the cost of bringing the oil to final color.

The process is the result of several years' research which has culminated in the erection and the operation of a pilot plant by which the effectiveness of the process when applied to any charging stock might be clearly demonstrated on a semicommercial basis. The design and the erection of the pilot plant has been carried out in complete detail. It has been built so as to incorporate every phase of a commercial extraction plant employing such a process inclusive of both the extraction unit itself and the equipment necessary for the recovery of the solvents. Since completion it has been in continuous 24-hour operation. No less than 18 different types of charging stock have been treated in the pilot plant. Its operation, however, has not only served as a guide to results securable from a given crude but has been utilized as a basis for the design and erection of commercial plants now in the process of construction.

There are many solvents which are selective for both the paraffinic and naphthenic oils which are available to the process for it has been developed around a principle rather than because of the use of some particular reagent. However, for the present at least the use of propane is recommended as a solvent for the paraffinic oils. It is cheap; it is readily available to all refiners; it is highly effective and easily recovered. For the naphthenic solvent a special blend of coal tar acids and bases with a boiling range of from 360° F. to 405° F. is recommended. This material is low in price when compared with most of the naphthenic solvents. It is available in the quantities required. It is effective at normal temperatures and is easily recoverable. It is exceptionally stable and has no tendency to decompose in the oil during the process of its recovery.

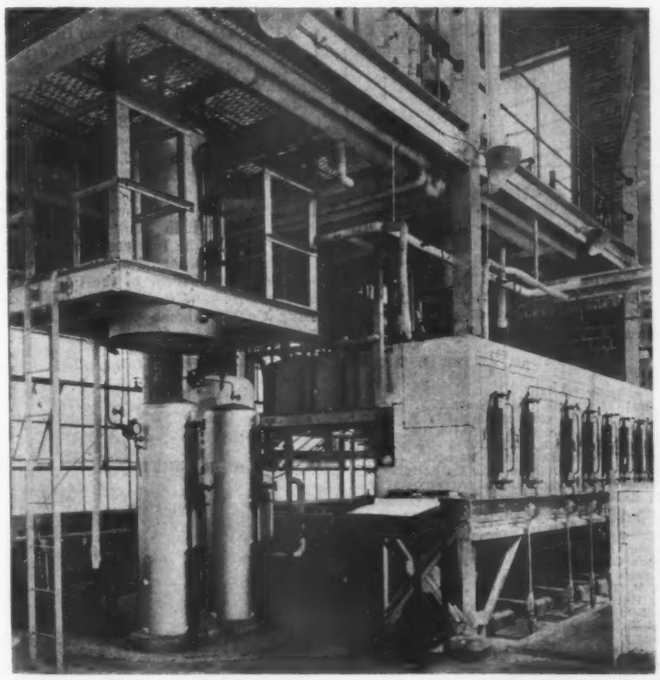
Test Runs

In order that the effectiveness of the process may be judged, the characteristics of the charging stock and of the paraffinic oil produced from it in the case of two types of crude are tabulated in Tables 1 and 2. These particular results have been selected for tabulation here for the reason that the charging stocks are extreme in their characteristics. The Ranger-Burbank residuum is high in gravity. It is a stock containing little asphalt. It is fairly high in wax but it permits a high yield of finished dewaxed oil having a viscosity index of 100. On the other hand, the Hendricks residuum is from a crude which is being run to asphalt and from which low cold test naphthenic lubricants are produced as an overhead product. It is consequently low in wax and in paraffinic oils.

Since the process is essentially a physical one in which the constituents existing in the charge oil are separated one from the other, the effectiveness of the process when applied to any residuum may be judged by the results tabulated here. The yield of the paraffinic oil procurable from any given stock may be judged by its gravity or its viscosity-gravity constant. The higher the gravity or the lower the viscosity-gravity constant, the higher the yield of paraffinic oil to be secured from a given charging stock.

The effect of fractionating and reblending a Duo-Sol treated stock so as

(Continued on Page 62)



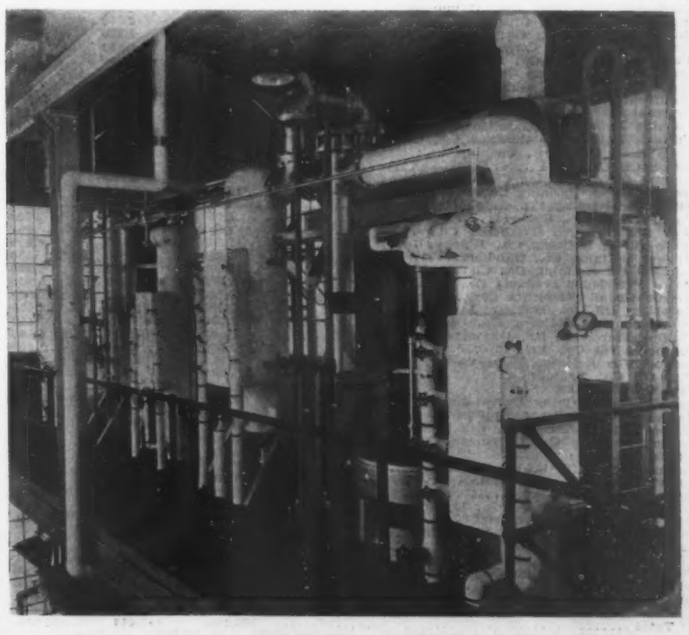
Part of pilot plant showing extractor units in the foreground

in the same manner in which steam is used for the stripping of fractionating tower bottoms.

Simultaneously, the naphthenic solvent continuously washes the last traces of naphthenic oil from the paraffinic fractions and, in consequence, acts in the same manner as reflux in a fractionating column.

It would appear that if this principle of operation is essential in a fractionating column, it would be of even more importance where liquids are being handled and separated by virtue of the solvent action of the reagents employed. In any event, it is a principle which has been responsible for some rather interesting results, the principal ones of which may be listed as follows:

(a) It permits the refiner to treat without prior refining steps the cheapest charging stock available from any given



Interior of pilot plant showing solvent recovery equipment

Mid-Continent Refinery Runs Reflect Fall Dip in Demand, But Show Marked Gain Over 1932

Slackening demand for gasoline which sets in with the close of the vacation season, along with the lessened use of the family car for week-end trips and evening drives, appears as it does annually in the schedule of crude runs to stills for October. These runs in the Mid-Continent territory will average 499,206 bbls. daily, according to figures received from refining companies, a decline of 27,543 bbls. as compared with the September schedule of 526,749 bbls. The falling off in the corresponding month last year was 28,435 bbls.

The October schedule is the largest for that month since 1930, when the schedule called for 518,800 bbls. It exceeds the 1932 schedule by 97,211 bbls. and that of 1931 by 27,016 bbls.

The most pronounced drop in the October runs as compared with those of September is seen in Oklahoma, where 157,480 bbls. for the current month is contrasted with 182,560 in September, a decline of 25,080 bbls.

In North Central Texas and West Texas increases, instead of decreases, were reported in the total figures. The rise of 3,575 bbls. in West Texas runs is accounted for chiefly by resumption of the Pasotex Petroleum Co.'s 14,000-bbl. plant in El Paso, with 7,100 bbls. scheduled for October. Entrance of the Bee Oil & Refining Co., Pettus, with 280 bbls. and the Price Refining Co., San Antonio, with 190 bbls. helped also to make up for seasonal recessions in runs reported by most of the companies in the district. The Coltex Refining Co. increased its schedule of runs to its plant in Colorado in the West Texas area from 7,000 bbls. in September to 8,000 in October, with the capacity of the plant reduced from 12,500 bbls. to 10,000. The Cosden Oil Co. reported a reduction of capacity at its Big Spring plant from 15,000 bbls. to 12,000 and a reduction of crude runs to 1,200 bbls. daily as compared with 4,000 bbls. in September. The Octane Oil Refining Co., Baird, while reducing its capacity from 2,000 bbls. to 1,400 bbls., increased its schedule of daily runs for October to 1,300 bbls., an increase of 100 bbls. over the September schedule. Sinclair Refining Co. runs of 900 bbls. to its El Paso plant compare with 2,500 bbls. in September.

In North Central Texas the Sinclair Refining Co. resumed operations of its Fort Worth refinery, with completion of a cracking plant, adding 2,500 bbls daily to the total of runs in that district. The runs of the Atlantic, Pacific and Gulf Refining Co., Wichita Falls, jumped from 300 bbls. in September to 2,000 in October. The All-State Refining Co., Thrall, entered the operating list with runs of 800 bbls., and the Starlight Refining Co., Hatchel, with 300 bbls. All these combined to counterbalance seasonal decreases reported by other companies and to provide an increase of 1,432 bbls. in the daily average as compared with September. Among plants removed from the active list in the North Central district this month is that of the Taxman Refining Co. in Wichita Falls, which suffered heavy loss in an explosion and fire several weeks ago.

In some instances plants have been shut down or are operating part time only as a result of inability to obtain needed crude. The closing of the plant of the Fox Refining Co. (formerly Garber Refining Co.), Oklahoma City, is reported to be due to inability to arrange for a crude supply. This plant scheduled daily crude runs of 3,000 bbls. in September.

The drop in the Oklahoma schedules is accounted for almost entirely by the action of companies throughout the district shaving their runs to conform with the slackening demand for gasoline in the fall season, although a few increases were recorded. The Anderson-Prichard Oil Corp., plant in Cyril will take 5,000 bbls. daily in October instead of 4,000 as it did in September. The Eason Oil Co., Enid, stepped up its runs from 2,500 to 3,000 bbls. The Sunshine Co.'s plant in Seminole, which had been closed, started up again, with 500 bbls. scheduled daily and with its capacity increased from 500 bbls. to 1,000. The Sooner State Refining Co. and the Triangle Refining Co., both with plants in Oklahoma City, are added to the list of active operators, the former with 80 bbls. and the latter 200 bbls. scheduled. Oklahoma City plants reported operating in September, in addition to that of the Fox company, already mentioned but reported as shut down for October, include those of the Cole Refining Co., Firestone Refining Co., Gem Refining Co., Oklahoma City Refining Co. and York Refining Co.

Mid-Continent Refinery Operations

Average Daily Crude Runs (Barrels)
(Based on estimates compiled first of each month by The Oil and Gas Journal)

	1929	1930	1931	1932	1933
January	508,550	535,460	478,795	405,910	399,405
February	506,800	519,355	470,125	411,280	407,125
March	514,950	531,500	449,634	401,155	423,445
April	530,530	555,250	497,391	419,750	441,000
May	577,500	574,300	510,540	436,160	470,460
June	583,030	572,250	567,915	440,765	479,987
July	565,800	548,475	588,840	433,255	525,845
August	555,250	526,400	590,545	427,710	518,510
September	552,300	498,710	588,105	430,430	526,749
October	544,720	518,800	472,190	401,995	499,206
November	545,473	506,700	480,440	408,180	.....
December	540,630	478,360	456,525	416,275	.....

Operations by Refinery Districts

	Oct. 1 Dy. crude capacity	October Dy. crude runs	Sept. Dy. crude runs	October Daily decrease
Arkansas	37,250	19,950	21,750	1,800
Kansas	183,200	109,750	112,450	2,700
North Louisiana	41,750	25,900	26,400	500
Oklahoma	308,000	157,480	182,560	25,080
North Central Texas	192,750	91,521	90,089	*1,432
West Texas	102,725	40,500	36,925	*3,575
East Texas	114,700	54,105	56,575	2,470
Total Mid-Continent	980,375	499,206	526,749	27,543

*Increase.

OKLAHOMA

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
Altitude Petroleum Corp. (J. H. Peacock Refining Co.), Oklahoma City	3,000	500	500
Anderson-Prichard Oil Corp., Cyril	6,000	5,000	4,000
Associated Petroleum Corp., Allen	3,000	(*)	(*)
Barnsdall Refineries, Inc., Barnsdall	6,000	3,500	3,700
Barnsdall Refineries, Inc., Okmulgee	10,000	(*)	4,500
Bell Oil & Gas Co., Grandfield	4,500	2,200	3,000
Black Gold Refining Co., Oklahoma City	2,500	1,500	1,500
Century Petroleum Corp., Oklahoma City	2,500	(*)	(*)
Champlin Refining Co., Enid	16,000	8,000	8,000
Cole (L. S.), Refining Co., Oklahoma City	400	(*)	300
Columbia Oil Corp., Oklahoma City	2,500	(*)	(*)
Continental Oil Co., Ponca City	30,000	24,000	26,000
Crescent Refining Co., Holdenville	1,000	(*)	(*)
Cushing Refining & Gasoline Co., Blackwell	1,700	1,500	1,500
Cushing Refining & Gasoline Co., Cushing	4,200	2,500	2,500
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Eason Oil Co., Enid	5,000	3,000	2,500
Empire Oil & Refining Co., Okmulgee	4,000	2,700	2,800
Empire Oil & Refining Co., Ponca City	12,000	8,400	8,700
Firestone Refining Co., Oklahoma City	200	(*)	300
Fox Refining Co., Garber	5,000	(*)	3,000
Gem Refining Co., Oklahoma City	1,000	(*)	100
Globe Oil & Refining Co., Blackwell	7,500	6,500	6,500
Hanger Refining Co., Oklahoma City	500	250	300
Johnson Oil Refining Co., Cleveland	6,000	4,000	4,000
Major Petroleum Products Co., Oklahoma City	2,000	500	950
Mid-Continent Petroleum Corp., West Tulsa	40,000	19,000	20,000
Marathon Oil Co., Bristow	5,000	3,000	3,000
Oklahoma City Refining Co., Oklahoma City	2,500	(*)	100
Phillips Petroleum Co., Okmulgee	6,000	4,500	4,500
Producers Oil Co., Bristow	2,500	1,000	1,000
Producers & Refiners Corp., West Tulsa	6,000	3,500	4,000
Pure Oil Co., Ardmore	5,000	(*)	(*)
Pure Oil Co., Muskogee	9,000	7,500	8,500
Rock Island Refining Co., Beckett	6,000	4,150	4,200
Sinclair Refining Co., Sand Springs	8,000	2,400	2,400
Sooner State Refining Co., Oklahoma City	300	80	...
Sterling Refining Co., Oklahoma City	3,500	(*)	2,500
Sun Oil Co., Yale	5,000	2,500	2,500
Sunray Oil Co. (C. E. Wright, receiver), Allen	7,000	2,500	2,500
Sunshine Refining Co., Seminole	1,000	500	(*)
Texas Co., West Tulsa	15,000	8,900	12,000
Texas Pacific Coal & Oil Co., Wynnewood	3,000	(*)	3,000
Tide Water Oil Co., Drumright	15,000	8,000	10,000
Triangle Refining Co., Oklahoma City	500	200	...
Western Oil Corp., Beckett	2,000	(*)	800
Wilcox Oil & Gas Co., Bristow	5,000	4,000	4,000
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,040	2,880
Yale Oil Corp., Yale	2,000	300	500
York Refining Co., Oklahoma City	3,000	(*)	400
Total	308,000	157,480	182,560

*Shut down.

NORTH CENTRAL TEXAS (INCLUDING PANHANDLE)

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
All State Refining Co., Thrall	2,300	800	..
Archer Refining Co., Megargel	1,500	500	400
Atlantic, Pacific & Gulf Refining Co., Wichita Falls	5,000	2,000	300
Continental Oil Co., Wichita Falls	6,000	4,000	4,000
Danciger Refineries, Inc., Pampa	6,500	5,000	5,000
Empire Oil & Refining Co., Gainesville	5,000	2,900	3,500
Exchange Petroleum Corp., Albany	500	200	200
Falls Refining Co., Wichita Falls	2,000	610	450
Gratex Refining Co., Graham	500	135	125
Gulf Refining Co., Fort Worth	10,000	6,000	6,000
Haskell Oil Refining Corp., Breckenridge	200	100	100
Humble Oil & Refining Co., Chilton	4,000	(*)	(*)
Humble Oil & Refining Co., Neches	5,000	2,325	2,450
Jacksboro Refining Co., Jacksboro	50	10	10
Kent Refining Co., Minerva	2,000	290	250
Kent Refining Co., Angus	4,000	100	250
LaSalle Petroleum Co., Burkburnett	3,500	400	300
Magnolia Petroleum Co., Fort Worth, No. 1	12,000	4,875	4,643
Magnolia Petroleum Co., Fort Worth, No. 2	6,000	1,592	2,427
Magnolia Petroleum Co., Corsicana	5,000	2,688	2,673
Marathon Oil Co., Fort Worth	5,000	3,500	3,500
Master Refining Co., Waco	1,000	350	500
Muenster Refining Co., Muenster	300	30	30
Olney Oil & Refining Co., Olney	3,000	1,700	2,000
Oriental Oil Co., Dallas	5,000	1,500	866
Panhandle Refining Co., Wichita Falls	5,000	3,000	3,000
Panhandle Refining Co., Kings Mill	2,000	1,300	1,300
Paragon Refining Co., Leuders	300	200	200
Phillips Petroleum Co., Borger	30,000	19,500	19,000
Phoenix Refining Co., Inc., Dallas	3,000	500	500
Pilot Point Refining Co., Pilot Point	500	300	300
Shamrock Oil Co., Sunray	4,000	600	600
Sinclair Refining Co., Fort Worth	5,000	2,500	(*)
Simms Oil Co., West Dallas	4,500	(*)	(*)
Southtex Refining Co., Trent	250	195	200
Southland Refining Co., Olney	1,000	120	885
Star Refining & Producing Co., Fort Worth	1,200	600	500
Starlight Refining Co., Inc., Hatchel	300	300	...
Superior Refining Co., Tiffin	500	50	50
Taylor Refining Co., Taylor	6,000	800	800
Taxman Refining Co., Wichita Falls	3,000	(*)	1,940
Texas Co., Dallas	16,000	11,000	12,000
Texas Co., Amarillo	4,000	2,200	2,500
Texas Pacific Coal & Oil Co., Fort Worth	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Caddo	1,000	600	700
Tucker Refining Co., Wichita Falls	200	140	140
Waggoner Refining Co., Electra	6,000	3,350	3,350
Wichita Refining Co., Wichita Falls	150	(*)	(*)
White Star Refining Co., Cisco	500	150	150
Total	192,750	91,521	90,089

*Shut down.

(Continued on Page 53)

Well at Arriola, Southeastern Hardin County, Increases Interest in Development There

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Oct. 9.—Reminiscenses of the good old days on the Gulf Coast when wells were brought in spouting over the tops of the derricks were resurrected recently when Republic Production Co. and Houston Oil Co.'s No. 4 Arriola, in the new Arriola Field of southeastern Hardin County, blew in out of control and flowed wild for two and one-half days before being killed.

This well, which has given indications of being one of the best producers brought in on the coast in some time, has placed Arriola in considerably better favor as an important field in view of the somewhat mediocre results which have been obtained in the development of the dome until now. Although there was no way of determining definitely how much the well was good for while blowing wild, a total of 20,000 bbls. of oil has been recovered from the ground, and with the well producing only two and a half days this would have been at the rate of approximately 10,000 bbls. daily. When the well first blew in it made only a spray of oil with the production increasing steadily as the well blew.

The blowout occurred while the well was being washed and screen run into the hole. While the screen got to bottom and was successfully set with packer no tubing was run and the flow was through the 7-inch (O.D.) casing, which had been cemented at 4,130 feet. Since then, tubing has been run and connections made and the well now is being brought in under control. Turned into the tanks at 3 p.m., October 7, the well flowed 1,158 bbls. in the first 16 hours and in the 24 hours ending at 7 a.m., October 9, it made 1,700 bbls. Production is through a half-inch choke on the tubing showing a pressure of 800 pounds. Pressure on the casing closed in is 400 pounds. Gravity of the oil in this test is 37 degrees at a temperature of 81 degrees.

Line From Sour Lake

The importance of the discovery has justified the Texas Pipe Line Co. in starting a line to the field from Sour Lake, a distance of 11 miles. Contract for this project has just been let to the N. A. Saigh Co., of San Antonio. This will be a 6-inch screw line which will tie in at Sour Lake with the Texas Pipe Line Co.'s trunk line to Port Arthur. A loading rack on the T.&N.O. Railroad to Beaumont has been the outlet for the production to date.

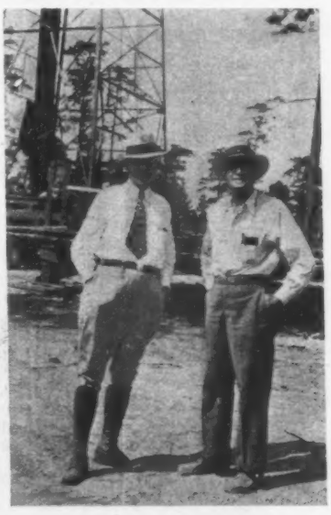
Production of the new well is from an Oligocene sand at 4,131-4,228 feet. The hole had been drilled to a total depth of 4,730 feet in salt topped at 4,483 feet. The oil is of particularly good grade testing 31.8 gravity, corrected for temperature. The well also is estimated to have made between 20,000,000 and 30,000,000 feet of gas daily.

Arriola presents what might be termed an ideal setup with the entire prospective productive area and dome owned in fee by the Republic Production Co. and Houston Oil Co., the operating companies, jointly. This will enable these operators to carry on development program completely free of any competitive drilling to the end that the field will be proved up on an ultra systematic basis consistent with the requirements of these companies.

It might be stated at this time that the same operators own in fee on a 50-50 basis a total of approximately 1,000,000 acres in that group of counties comprising Hardin, Polk, Jasper, Newton, Tyler, Orange, Jefferson, Liberty, Sabine, Nacogdoches, Angelina, Houston, San Augustine, and Shelby, and extending across the line into southwestern Louisiana. This represents a territory largely virgin so far as oil development and important wildcatting are concerned.

Divided Into Units

Under arrangements which have been worked out for the possible future development of all these fee holdings by the two companies, all the land has been divided into units, each of which is as nearly 640 acres and as nearly uniform in shape as is possible to make it, and each is numbered. Either company at any time may select whatever unit or units it sees fit to drill and carry on whatever development it desires. The other company may or may not elect to share in the cost of the development of any of these units.



R. R. Hobson (left), general superintendent of the Houston Oil Co., Houston, and G. S. Reardon, superintendent of the Republic Production Co., Beaumont, who are in charge of development at Arriola, Hardin County

It is on this basis that Arriola is being developed. The discovery well, the first test, drilled on the strength of geophysical findings which indicated the existence of a salt dome, was drilled jointly by both companies. Then Houston Oil Co. elected to drill certain adjoining units in which development Republic Production Co. did not take part.

Clearing of the land and repairing of roads into the field now are under way by these companies in preparation for carrying on the development program. Pending completion of the No. 4 Arriola no new locations have been made definitely.

The proving up of a dome and field at Arriola is of significance in several ways. It fills in a gap in a group of old domes, and, in accordance with any trend theories of domes it possibly is due for the development of an important field. It also is another mark to the credit of geophysical instruments, which are responsible for its discovery.

Indications of the dome first were given as far back as 1928 when the first surveys were made by shooting crews. With the salt leads picked up by the seismograph in the general reconnaissance, dealing with torsion balance then followed. Because of general conditions in the industry the prospect was not drilled immediately, and the first test was not started until July, 1932. In June just previous to the starting of this test the area was checked over again with reflection machines for additional detailing and outlining. The efficiency of the work is shown by the fact that the first test drilled not only opened production but found the salt, proving the dome itself.

Many Peculiarities

Arriola has a number of peculiarities, among which is the fact that so far no cap rock has been found overlying the salt. Wells which have gone into the salt have drilled into it directly from sands and shales. The discovery well had considerable broken sand, shale and salt. This condition has been found before only on a few of the shallower unproductive domes in southern Louisiana. The only explanation which can be offered for this is that possibly at one time the top of the dome protruded above the water and that the cap was eroded off and when again submerged the sands and shales were deposited directly on the salt.

Including the latest producer, a total of eight tests have been drilled around Arriola within the year since the starting of the discovery well. Three of these were producers. The others, which were dry, were located some distance from the oil wells. Two of the producing wells, Nos. 1 and 4 Arriola fee, and one dry hole, Houston Oil Co.'s No. 1-X fee, 1,500 feet northeast of the discovery well, went into salt. It was in the latter well that salt was found the highest, indicating the dome to lie in a northeasterly direction from the discovery well. The other producing well, No. 3 Arriola, no doubt would have gone into salt also if it had been deepened below the producing sand.

The discovery well, No. 1 Arriola fee, was completed in September, 1932, making initially approximately 250 bbls. of net oil daily with considerable water from sand topped at 4,004 feet. This hole had been drilled to a total depth of 4,326 feet in salt topped at 4,306 feet, and then plugged to 4,126 feet. Gravity of the oil in this was 40 A.P.I. as compared with 31.8 A.P.I. in No. 4.

The latest producer, No. 4 Arriola, is located approximately 800 feet north and slightly east of the discovery well. While completed in the same general horizon as the discovery well, it apparently is in a different sand or lense. Of particular interest is the fact that no water was noted in the sand although the hole was cored on through the sand to the salt. The fact that there is nearly 100 feet of sand makes the well look all the more important.

The other producer, No. 3 Arriola, is about 450 feet south of the discovery well. It was completed in April of this year as a pumper making around 65 bbls. net oil with considerable water from sand at 4,305-20 feet. This oil also was higher gravity, being around 41 degrees. This well was a little lower and apparently is moving off the dome but probably would have gone into salt if deepened another 150 or 200 feet.

Previous Tests

Before the completion of the discovery well, Houston Oil Co. started drilling in August and early September, 1932, on the three tests of its own, all of which turned out dry. These were drilled, one each, on three different 640-acre units adjoining the joint Arriola fee tract. On the "X" unit, east of the Arriola tract, No. 1 fee, 1,500 feet northeast of the discovery well, was dry and abandoned in salt at 4,136-4,267 feet, finding the salt higher than in the discovery well.

On the "Y" unit, just south of the "X" unit and diagonally southeast from the Arriola fee tract, No. 1-Y fee, 2,500 feet southeast of the discovery well, was drilled to a total depth of 6,246 feet, where it was abandoned as dry. It failed to drill into salt, evidently being too far southeast of the dome.

On the "Z" unit, just south of the Arriola fee tract, No. 1-Z fee, 2,000 feet southwest of the discovery well, was abandoned after drilling to a total depth of 6,400 feet in shale without encountering salt or cap.

The other two dry holes were Gulf Production Co.'s No. 1 Kirby, 3,000 feet northwest of the discovery well and drilled on a 100-acre lease held by that company, and Republic Production Co.'s No. 2 Arriola, east offset to the Gulf well. The Gulf well was dry at a total depth of 6,734 feet, and the Republic well at 5,980 feet. The latter was junked with drill pipe stuck in the hole.

It will be noted that all the dry holes, with the exception of the Houston Oil Co.'s No. 1 "X" fee, were drilled well off the evident limits of the dome. The latter, although dry, found the salt high, indicating the dome running in that direction, and thus opens considerable acreage for potential development.

Operations at Arriola are directly in charge of G. S. Reardon, superintendent for the Republic Production Co., with headquarters at Beaumont, Tex., and R. R. Hobson, general superintendent for the Houston Oil Co., with offices at Houston.

Unit Plan Adopted for Middle Kettleman Dome

WASHINGTON, D. C., Oct. 9.—A unit plan of development and operation of the Middle Dome Kettleman Hills Field in Kings County, California, has been approved, Secretary of the Interior Harold L. Ickes announced.

Consummation of this conservation plan is the result of extended negotiations between the secretary, holders of government oil and gas prospecting permits, and the owners of fee lands. Substantial discoveries of oil and gas were made in this field this year. It is estimated to contain 40,000,000 bbls. of oil within the area now regarded as proven productive.

GEOLOGISTS ASK U. S. WORK

The Rocky Mountain Association of Petroleum Geologists has petitioned the Federal Emergency Administration of Public Works for the allocation of public works funds to the U. S. Geological Survey in order that unemployed geologists may be employed on surveys of mineral resources in the Rocky Mountain region. The petition requests that $2,500,000 be set aside for this purpose.

Fuel Oil Flashing Unit Added to Cracking Plant at the Anderson-Prichard Refinery in Cyril

By W. T. ZIEGENHAIN

The Anderson-Prichard Oil Corp. has reduced by 50 per cent its production of low value, cracked fuel oil at its Cyril, Okla., refinery as a result of installing a vacuum flash tower.

An overhead gas oil stream of approximately 50 per cent of the incoming pressure tar charge is recovered and returned to the cracking unit as a carbon-free oil and the bottoms from the operation have characteristics that make it exceptionally well adapted as a road oil base.

The flashing tower is capable of handling 1,600 bbls. of 10.5 gravity, 40 cold test pressure tar daily having a viscosity of approximately 300 Saybolt Furol at 122° F. This tar is brought directly from the pressure unit to the flashing system at a temperature of about 770° F. It enters the tower at a pressure sufficient to allow for vaporization of the overhead products to the extent stated above.

Description of Operation

Reference to the accompanying simplified flow chart permits an easy understanding of the routine operation of the unit. A typical set of operating data is included in the discussion.

The 10.5 gravity pressure tar enters the flash tower near its middle at about 770° F. This temperature at the entering pressure of 70 ml. causes approximately 50 per cent of the charge to vaporize immediately. The vapors pass upward through a series of three bubble trays above which is a pan to allow the side stream of gas oil to be taken off. This gas oil consistently shows between .08 to .14 per cent carbon by the Conradson carbon method.

An enclosed exchanger has been built into the tower immediately above the pan to utilize some of the heat available in the vapors. Eighteen hundred barrels of approximately 20 gravity pressure still charging stock is delivered daily to the inlet of this exchanger. It enters at 150° F. and leaves at about 325° F. Except to aid in the removal of heat from the vapor space above the pan, the passage of the fuel oil charging stock is of no significance in the operation of the flashing tower.

Complete condensation of the gas oil vapors takes place in the area just above the exchanger. At this point a condenser has been built into the tower which handles about 325 gallons of 80 degree water per minute. There is sufficient overcapacity in the water condenser to allow considerable flexibility in the volume of fuel oil charged through the exchanger as a coolant.

Use Water Spray

For use when operating at full capacity, a set of louvers has been installed in the top of the tower which operate in conjunction with an open water spray. This system is a final safeguard against any of the oil vapors being carried over into the barometric condenser.

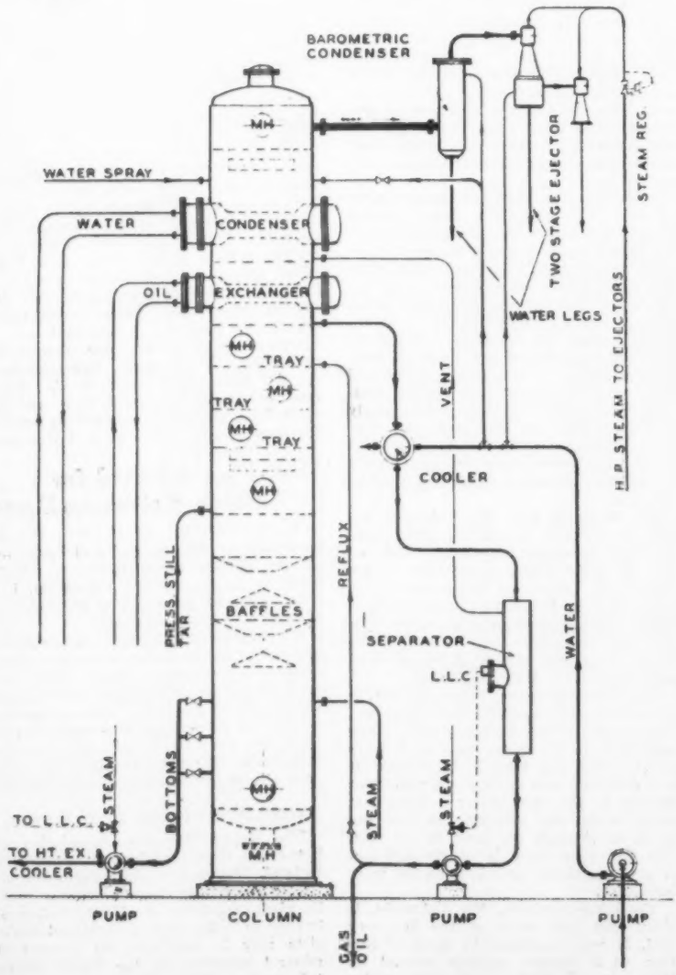
The reduced pressure within the tower is made possible by the two stage, steam-operated ejector. Steam is delivered to the ejector at about 110 pounds pressure and about 600 pounds of steam is used per hour when the unit is operating at capacity. A pressure of about 70 mm. absolute is maintained in the vaporizing section of the tower, and approximately 60 mm. absolute at the entrance to barometric condenser.

Lower Section of Tower

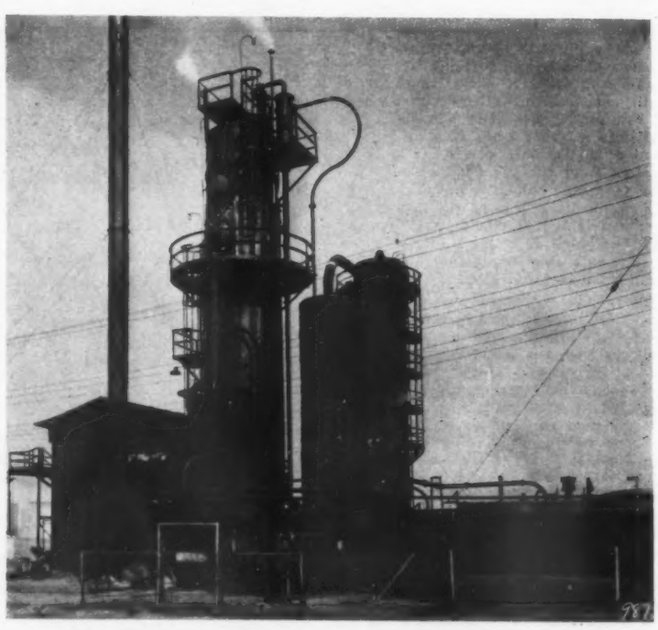
In the lower section of the tower a temperature of approxiwately 600° F. is automatically obtained and under the reduced pressure provides for the manufacture of a residuum of high asphaltic content particularly well suited for road purposes.

This residuum ranges in gravity from 4.5 to 8, depending upon the quality of product desired. Its viscosity will fall within the range from 496 seconds to 300 seconds at 122° F. using the Saybolt Furol machine.

The flash unit was designed and constructed by Arthur G. McKee & Co., refinery engineers and contractors, Cleveland, Ohio.



Simplified flow chart of flash tower operations



General view of cracking plant at the Anderson-Prichard Oil Corporation's refinery in Cyril, Oklahoma. The flashing unit is shown in the foreground

Use Petroleum Residues in Place of Linseed Oil

WASHINGTON, D. C., Oct. 9.—A new method devised recently by the Institute of Paints and Varnishes of Yaroslav, Russia, concerns the use of petroleum residues instead of linseed oil, according to a consular report to the Department of Commerce. Soviet paint plants have been using tens of thousands of tons of linseed oil annually and its replacement by petroleum products will result in lowering of production costs. The first plan to use the new method was the Workers Victory Paint and Varnish factory at Yaroslav, which manufactured its first consignment of paint last May.

BRITISH AMERICAN IN WEST

TORONTO, Ontario, Oct. 9.—An announcement has been made that the physical assets of the Sterling Oil Refineries, Ltd., of Moose Jaw, Saskatchewan, have been purchased by the British-American Oil Co., Ltd., of Toronto. The purchasers took over the Moose Jaw refinery on October 1. The Sterling plant was constructed about two years ago, and the transaction is reported to involve approximately $160,000. The purchase represents the entry of the British-American Oil Co. into the refinery field in western Canada. The company at present operates large refineries in the east, at Montreal East and Toronto. It is probable that some extensions will be made to the Moose Jaw plant.

KEROSENE AND LUBRICANTS UP

LOS ANGELES, Calif., Oct. 9.—Kerosene production in California increased from 13,049 bbls. to 18,048 bbls. daily in August, and total demand increased from 7,179 bbls. to 16,559 bbls. daily. Stocks increased 753 bbls. daily, or a total of 23,331 bbls., and amounted to 1,457,684 bbls. The daily average production of lubricants increased from 3,099 bbls. to 4,914 bbls. and daily average domestic demand decreased from 4,450 bbls. to 4,445 bbls. Stocks decreased 382 bbls. daily, or a total of 11,850 bbls., and amounted to 779,239 bbls.

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Study of Overhanging Salt on Various Domes of Coastal Texas and Louisiana Areas

By SIDNEY A. JUDSON[1] and R. A. STAMEY[2]
Houston, Tex.

Abstract

Overhanging salt has been found on eleven coastal and interior domes in Texas and Louisiana. The first ledge of salt drilled through was at Belle Isle, Louisiana, in 1898; the first oil production beneath salt was found at Anse la Butte, Louisiana in 1902. However, extensive prolific production was not obtained until discovery of the overhang at Barbers Hill in 1930.

The general theories for the cause of overhangs are reviewed. The present criteria for the advance recognition of overhangs are listed, and the probability of other overhangs is conjectured. The special methods required for drilling through cap rock cavities and salt are described.

The known overhangs are described and general and specific examples are shown by cross sections.

Oil in small quantities was produced from sedimentary beds beneath a salt overhang at Anse la Butte, Louisiana, as early as 1902. Records do not show that any great significance was attached to the discovery at that time, and in general the appearance of salt in a well, even though it could be drilled through, was then regarded as unfavorable. Expressing the opinion of that time, Fenneman[3] in 1904 wrote:

"In general, experience has not been favorable to the finding of oil beneath the salt."

This exploration at Anse la Butte led to similar exploration at Vinton where several wells were obtained beneath a salt overhang. The difficulty of such exploration and the disappointing results secured discouraged this type of exploration for many years. However, with the extensive development of oil sands discovered in 1930 beneath an overhang of salt at Barbers Hill followed by similar development at High Island and Lake Barre, sufficient interest, it is believed, has been directed to the study of known overhangs and possible overhangs on salt domes to warrant the collection and presentation of available data concerning them.

The term "salt overhang" will be construed in this paper to mean a portion or ledge of salt attached to and protruding outward from the central mass of a salt dome.

Features of Typical Salt Overhang

A typical shallow overhang is shown in Figure 1-a. This is a generalization of the conditions found in the overhang on the east flank at Barbers Hill where sufficient exploration has been made to give a detailed picture of such a condition. This overhang was described in detail by Judson, Murphy and Stamey[4]. This is taken to be typical of a shallow overhang where a thick cap rock above the salt rests upon the salt and in places extends 200 or 300 feet beyond it. The three characteristic zones are shown, namely, the cap rock, the salt, and the "gouge zone."

(a) An upper false cap of calcareous sandstone of variable thickness which was formed by the more or less complete calcareous cementation of the loose sands overlying the true cap rock;

(b) A zone composed of calcite intermixed with sedimentary beds by collapse of the rock. This is generally porous and cavernous and ranges from a few feet to 200 feet in thickness;

(c) A relatively thin member of calcite and gypsum which contains the largest caverns of the cap rock; and

(d) A basal member of massive anhydrite; minor cavities are occasionally found at the contact of this anhydrite with the salt below.

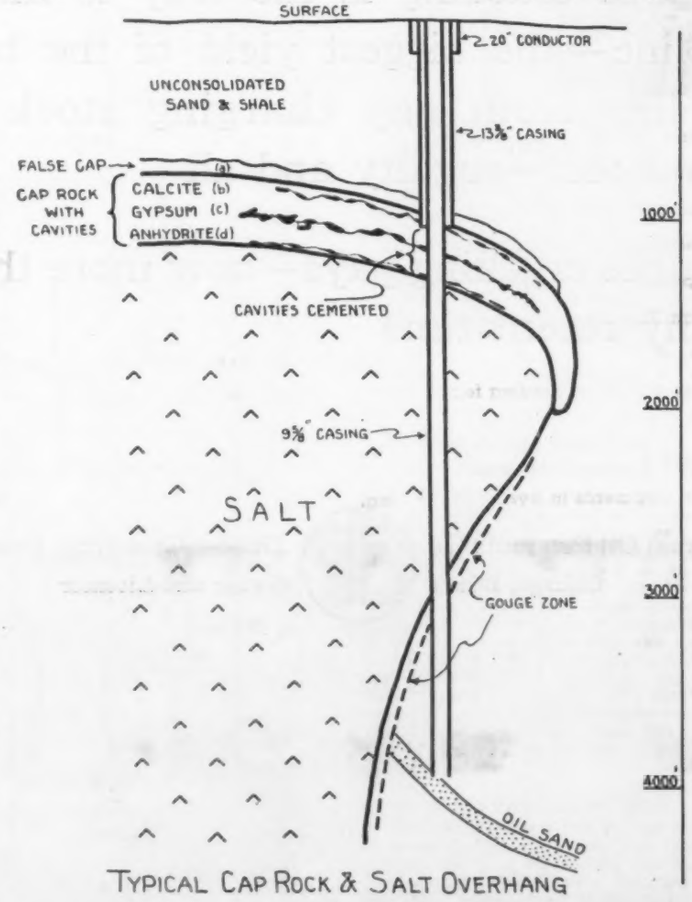
The composition of the salt in an overhang is usually identical with that of the salt of the main dome. The impurities in it which total approximately from 2 to 20 per cent, consist largely of anhydrite crystals disseminated through the salt. These impurities as found in salt cores from many widely separated domes were discussed in a paper by Hanna[5]. Occasional irregular steeply dipping beds consisting principally of anhydrite sand several hundred feet in thickness are found within the salt. Material from adjacent sedimentary beds also sometimes occurs interspersed through the salt. The thickness of the salt penetrated varies from a few hundred feet at the outer edge of the overhang to as much as 2,800 feet, the greatest thickness drilled through up to the present time.

The "gouge" zone, usually about 50 feet thick, occurs between the salt and the sedimentary formations below the overhang. This gouge zone is composed of anhydrite sand which remains as a residue from the solution of the salt, mixed with salty shale, fragments of massive anhydrite, and quartz sand, and shale often highly fossiliferous.

Distribution

Eleven of the salt domes of Texas and Louisiana have been found to have salt overhangs. Of these domes five are located in the Gulf Coast plain of Texas, namely, Hull, Barbers Hill, Allen, High Island and Orchard; four in the Gulf Coast plain of Louisiana, namely, Anse la Butte, Belle Isle, Vinton and Lake Barre; and two in the interior, namely, Keechi and Bethel which are located in the East Texas geosyncline. The writers have found no records of salt overhangs on the domes in interior of Louisiana. The location of the salt domes with known overhangs are shown in Figure 2.

It is of interest that the greatest number of overhangs have been found on domes of the Gulf Coastal plain, the region where the formations penetrated are more recent and accordingly less consolidated than those farther inland.



TYPICAL CAP ROCK & SALT OVERHANG

FIGURE 1(a)

History

The history of the discovery of salt overhangs extends through 35 years from the year 1898 to the present time.

First Period—1898 to 1930

A considerable number of early attempts were made to drill through the salt in the hope of finding oil sands beneath. The results were discouraging since the overhangs discovered yielded only little oil. This period of unprofitable exploration lasted from the year 1898 to 1930. During this time exploration of the salt gradually diminished due to the great difficulty encountered in completing wells through overhangs. At the end of this period the consensus of opinion held that except in rare instances it was impossible to drill through the salt and therefore unwise to attempt it.

Overhangs were found on the following domes in the order named:

Belle Isle	1898
Anse la Butte	1902
Vinton	1911
Keechi	1917
Hull	1923
Bethel	1929

Attention was first drawn to the probability of the existence of an overhang as early as 1898 when a well drilled on the flank of the dome at Belle Isle was reported to have gone through three separate beds of salt alternating with sedimentary formations. It was finally abandoned in salt. The first instance of a well encountering a definite overhang was at Anse la Butte in 1902 when the No. 1 Haywood was recorded as making a small producing well beneath 272 feet of salt. No cap rock was found above the salt.

Vinton, Louisiana, can claim the first known example of an overhang in which production was found beneath both cap rock and salt. Overhangs were later discovered at Keechi, Hull, and Bethel but of these the first two mentioned are believed to be small, while the extent of the one at Bethel has not yet been defined by drilling.

Second Period—1930 to the Present

The discovery of prolific production beneath the overhanging salt at Barbers Hill, Texas, in February, 1930, marked the beginning of the period of purposeful exploration of domes for possible overhangs. This development stimulated study and exploration of other coastal salt domes to determine whehter or not they also carried overhangs with oil beneath. This drilling resulted in finding that High Island, Allen, and Orchard in

(Continued on Page 30)

Presented at Houston meeting of American Association of Petroleum Geologists.

Complete paper will be published in the December A. A. P. G. Bulletin.

[1]Chief geologist, Texas Gulf Producing Co.

[2]Geologist, Texas Gulf Producing Co.

[3]N. M. Fenneman, "Oil Fields of the Texas-Louisiana Gulf Coast U.S.G.S. Bulletin 250, pp 459-467.

[4]"Overhang Cap Rock and Salt at Barbers Hill, Chambers County, Texas." Bull. Amer. Assoc. Petrol. Geol. Vol. 16, No. 5. May, 1932, pp 469-482.

[5]Marcus A. Hanna, "Secondary Salt Dome Materials of Coastal Plain of Texas and Louisiana." Bull. Amer. Assoc. Petrol. Geol., Vol. 14, No. 11, November, 1930, pp 1,469-75.

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While the Industry Waits

While the industry waits upon Washington for what may never come uncertainty handicaps business.

When a forward trade movement halts the tendency is to slip backward as the gasoline market has been illustrating. Anticipations deferred from week to week have prolonged unsettlement, weakening the market.

Men are marking time from day to day until it is known whether the government is going into price fixing from the well to the filling station. Business and industry cannot function properly when the future is clouded.

More so, particularly, if the doubt is whether the industry is to be free or is to be operated as a government utility.

The delay however, has presumably been unavoidable owing to the complexity of the problems, the division of opinion in the industry and the desire of the administration to be assured of its ground.

What has been accomplished toward stabilization of crude production appears to be working out. The co-operation of the States and the decisions of the courts upholding regulatory orders are encouraging.

But the refining and marketing situation is still unstable. Stocks of gasoline last year showed a sharp decline from July to November. Crude runs this year showed a steady increase with the result that stocks are approximately where they were a year ago.

It is being said that the same method of regulation applied to crude production may yet have to be applied to crude runs to stills; that the output of gasoline must be kept in line with demand and no more, even if it involves control of refinery output.

At the moment refiners say the prices they obtain for gasoline are not in line with the price of crude. But the price of gasoline has been kept down by an oversupply which cannot last when overproduction of crude is stopped.

Argument that cheap crude is essential for those who sell gasoline cheap overlooks the whole purpose of the code which is to put the industry upon a sustaining basis.

With crude production stabilized at a fair price and the sources of raw supply for cheap gasoline eliminated the markets will adjust themselves on a comparable relationship.

The weakness in the gasoline market is not because of the buyers at the service station. It is due to sellers who seek sales by low prices and those who feel forced to meet this competition.

Some think that can be cured only by governmental price fixing from the well to the pump. Others believe that with the removal of excess crude production the situation will adjust itself. The argument is beclouded by a third element—marketing—which has a viewpoint of its own.

An ideal result would be that which returned a fair profit upon each phase of the business, to the producer of crude, the refiner and the distributor.

Experience has shown that the industry as a whole cannot prosper when the producer is not able to make ends meet or when the refiner has to compete with distress gasoline. No permanent business can be maintained upon a demoralized industry.

The purpose of the code is to establish the industry upon a foundation which will lift the oil business out of the depression.

To that end it has freed oil men from the unreasonable restraints which made it a potential crime for members of an industry to consult together for the good of the industry.

Conditions recognized as contrary to good business and common sense, such as wasteful overproduction of oil, had been allowed to run on because power to check them was denied. A code of marketing ethics had been attacked and flouted because there was no enforcing authority.

Regulation by the industry had been limited by fear of restraint of trade statutes; regulation by the States had been subject to the pitfalls of politics.

The code offered the industry a new charter of freedom to solve its problems—if it proved capable. It has been unfortunate that it has not proved capable.

Instead of being satisfied with road directions it has been "thumbing a ride."

It used to be thought that if the industry were only free to deal with overproduction it could soon be settled; that if it were allowed to act in concert unethical practices and abuses could be eradicated.

With helpful Federal co-operation the crude overproduction problem is being overcome but a plague of other problems is postponing stabilization.

A complete system of industrial government has been set up, with the President, the oil administrator and his administrative board of Federal representatives to oversee its operations.

But the detailed working of the system is within the industry itself, with the Planning and Co-ordinating Committee at the top, the regional committees and states committees for every branch of the industry.

Everything is set to go ahead but all eyes seem turned to Washington. From day to day the industry is perplexed by reports of a decision "tomorrow and tomorrow and tomorrow."

Question about the constitutionality of governmental price fixing, with the possibility of the issue being taken to court, and difficulty in collecting reports asked from oil companies are given as the latest reasons for delay in reaching a decision.

Meanwhile the gasoline market has been weakened, waiting for a prop from Washington. It is impracticable to make any long range decisions while this uncertainty is prolonged.

This whole great industry has been in the open-mouthed attitude of a rustic watching for a rabbit to be produced from a hat.

Suppose, by some chance, there should be no rabbit. How much valuable time will have been lost, standing first on one foot and then on the other, when the urgencies of the case called for a steady march forward.

The best thing the administration at Washington could do for the oil industry right now is to make a definite announcement, one way or another, that there will be government price fixing or there will not be.

Either way the industry could return its attention to business and prepare for what is to come.

"100% DRESSER COUPLED"

....this decision can save you thousands of dollars!

ON a 100% Dresser-Coupled gas line there are no "questionable" joints. Each Dresser joint, like each length of pipe, is factory-made . . . therefore uniform in quality, size, workmanship and finish. Installation is simple, being purely mechanical—eliminating the uncertainty of the human element. Dresser Couplings remain *absolutely* tight under conditions that are ruinous to ordinary types of joints . . . saving millions of feet of gas and thousands of dollars during their generations of leak-proof service.

S. R. DRESSER MFG. COMPANY
BRADFORD, PA.
In Canada: Dresser Mfg. Company, Ltd.
32 Front Street, West, Toronto, Ontario.

DRESSER COUPLINGS DOMINATE

Purchase of Distress Gasoline Reverses Trend; Price Fixers Question Permanency of Aid

By W. T. ZIEGENHAIN

The spot purchase of approximately 300 cars of Mid-Continent gasoline by the Gulf Refining Co. Friday reversed the trend of prices for the week. However, as late as Tuesday all grades still remained below those of a week ago. Natural gasoline again proved a feature and promised to move into still higher ground as new inquiries were received from Gulf Coast buyers. These buyers had already taken all of the accumulated stocks of the smaller manufacturers. Neutrals and bright stocks worked into a stronger market position. Wax stocks have been reduced to the lowest point in five years and advanced prices are imminent.

Price Fixing

Week by week refiners and marketers have awaited some definite statement from Secretary Ickes in regard to price fixing for crude and refined products. An early attempt to lull buyers into paying higher prices witnessed only the drying up of inquiries and orders.

Since then the advancing crude price has acted as the only stimulant to improve the gasoline price structure. It was generally agreed that $1.11 was the objective for crude. That price was closely approached in the advance on September 29.

In the meantime, however, as the gasoline price showed weakness new assurance of price fixing was offered. This assurance bolstered up hopes for the time but did not create new business. At the relatively high rate of refinery operations maintained throughout September and so far in October stocks accumulated. Many of these refiners who hold these stocks have no plan to hold them over the winter. The result has been to cut prices. Approximately 1,800 cars of this are said to be available now as "distress material."

Refined Oil Market Barometer

Except for small price advance in minor products offered by East Coast refiners and a slightly improved export market for gasoline at the Gulf, the general market is weaker. Price cutting continues to spread in the retail market throughout the East and Middle West. Relief to Mid-Continent gasoline followed the purchase of about 300 cars of distress material on Friday but those who favor Federal price control claim the benefits will be short lived. Natural gasoline continues strong.

Mid-Continent—Refinery gasoline weak. Export orders firmly established natural price at 5 to 5¼ cents.

Atlantic Coast—Gasoline retail market unsettled with tank car prices unchanged. Cylinder stocks and bright stocks advanced 1 to 2 cents. Fuels strong. Wax advanced.

Chicago—Large quantity of low octane gasoline threatens entire market. Kerosene and heating oils less in demand.

California—No change in prices. Market slow.

Gulf Coast—Export gasoline slightly stronger. Diesel fuels higher.

Pennsylvania—Gasoline slightly weaker. Trading slow except in wax.

Those who feel that regulation must be resorted to, in order to maintain the present prices for crude, and its products have pointed to this increasing volume of distress gasoline as the omen for a sharp break in the entire market.

But, just when the threat of this material was strongest, and price fixing was pointed to as the only means of averting a break, large refiners were reported working on a plan of buying up most of this gasoline and the actual purchase of approximately 300 cars of East Texas material was assumed to be the initial move. If subsequent purchases are made by others, probably the strongest factor to force the immediate adoption of price fixing has been removed.

Another Angle to Purchase

Although not given much discussion, there is another reason why some refiners are looking toward East Texas plants as a source of gasoline. With the crude price high compared with the spot price for low octane East Texas gasoline a refiner might find that it was more profitable to buy this gasoline and treat it with Q fluid than to manufacture a gasoline of the equivalent octane number in his own plant. This gives the Ethyl licensee added flexibility in his operations which the others do not enjoy under the present market conditions.

Refinery and Natural Gasoline

Whereas low octane refinery gasoline was available for 3½ cents early in the week, the relief in East Texas permitted the price to snap back to 4 cents by Tuesday.

The regular and premium grades acted in sympathy but their prices remained about one-fourth cent under those of a week ago. All grades of natural gasoline were firm and the 26-70 grade was tightly held at 5 cents with 5¼ cents predicted within a few days.

Estimates of 40,000,000 gallons have been made as the total of export purchases of natural in September and October to date.

Kerosene and Distillates

There were no price changes in the list of kerosene and furnace distillates. Buying for current needs has supported the 3½-cent minimum price quoted for the 41 kerosene and 2⅞ cents is the lowest price quoted for low flash, good odor, 38-40 furnace distillate.

Fuel Oil and Gas Oil

The low cold test fuel oils of high gravity are being sought with increasing interest. Although this group promises to advance in price first, should any general upward move start, actual sales continue on the same basis as a week ago.

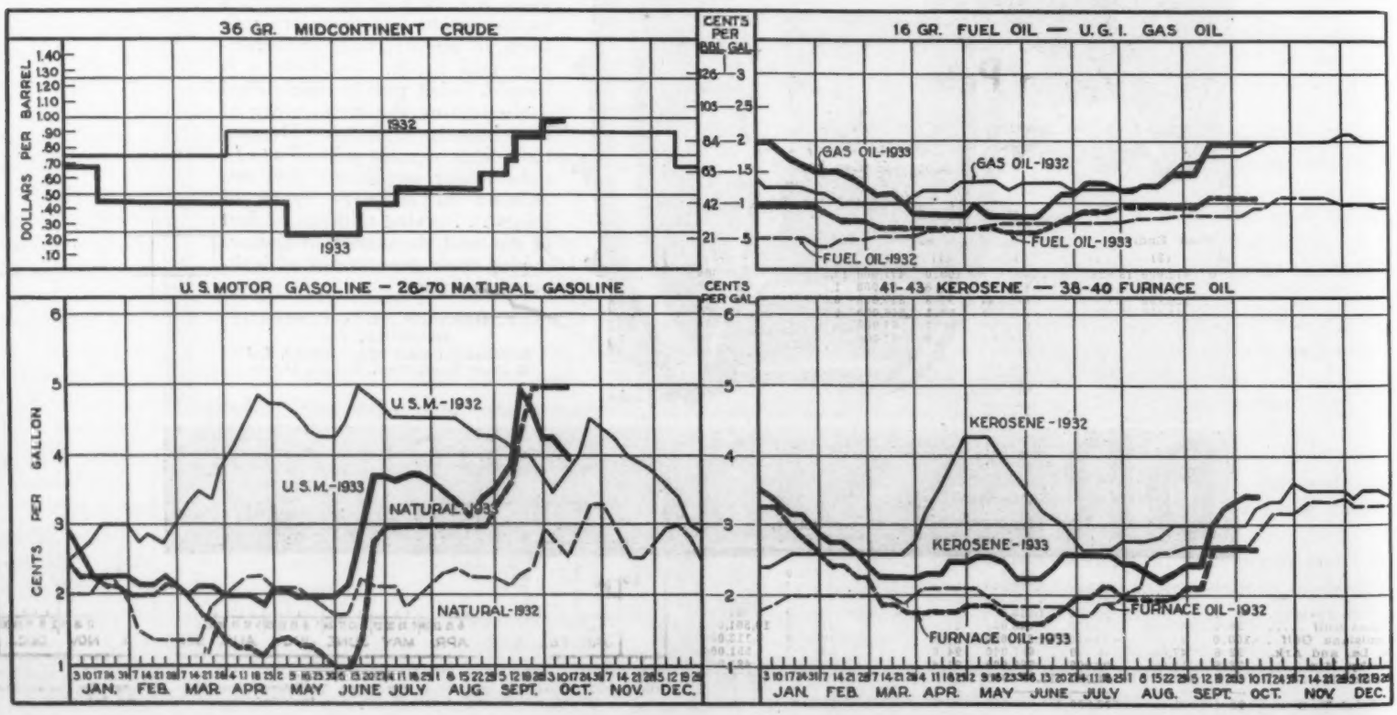
Gas oil prices also remain unchanged and 2 cents is the minimum price quoted for the UGI grade. Low cold test material, suitable for use in the larger household burners, enjoys a price differential in its favor of one-fourth to three-eighths cent.

Lubricants and Wax

Neutrals and bright stocks are being quoted at last week's price level but the market seems to be in a favorable position to move higher.

Wax stocks have been reduced to the lowest point in five years and the market has been firmly established at 3½ to 3¾ cents with the top of the range promised by the larger refiners as the minimum before another week passes.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Lubricants and Fuel Oils Are Gaining Strength in the Eastern Seaboard Refinery Market

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Oct. 9.—Lubricants and fuels were the strong products in eastern refined markets over the past week. In the cylinder stocks prices on steam refined and bright stocks were advanced from 1 to 2 cents per gallon in barrels and in bulk for export movement. This advance has been anticipated since late September and is in line with the strength shown in the domestic market in recent weeks. The export prices have been lagging behind the domestic market and it is felt that additional advances will materialize unless some unforeseen development occurs in foreign markets. There also has been a strengthening in all classes of package oils for export movement, the amount of changes varying with the several exporters in this territory.

In regard to fuels there have been no important changes in prices but the market generally is considered strong in the trade, the strength extending from the heaviest grades of residual fuels sold as bunker oils to the highest gravity grades of overhead distillates. Trade opinion still leans to higher prices for practically all fuel products, especially if higher prices are posted for crude oil in the Mid-Continent and California fields. The supplies of all fuels in this territory are low and the demand, especially for the furnace oils, is heavier than it was a year ago. Refiners and distributors in this territory, however, usually do not look with favor on higher refinery prices for furnace oils after the consuming season starts. Some distributors enter into agreements with consumers to furnish furnace oils and other fuels on a flat basis covering a period of several months. In other cases a maximum price is set above which the price to the consumer cannot be advanced during the consuming season. At the same time there is some "free" trading in these products, including tanker, tank car and tank wagon sales, and it is this market on which published prices are largely based. Any shortage in this market is certain to be reflected in the open market quotations regardless of the contract situation.

A check this week showed that practically all of the larger refineries in this territory are sold up on all grades of refined wax. In several cases they will not have additional open market material to offer over the remainder of the year. Due to this condition the one-half cent advance in prices per pound explained a week ago are being maintained and higher prices may materialize.

The recent buying wave was partially speculative in anticipation of higher prices due to more stabilized conditions in the oil business. However, available data show that actual consumption has increased in the domestic market and the foreign demand has been more active. As explained by one manufacturer the sellers are now benefiting from a curtailed output which started the letter part of last year and continued over the first half of this year. With prices extremely low last year and little demand regardless of price many small and large manufacturers curtailed their output and in a few cases at least shut down their wax plants. This gave the industry as a whole an opportunity to reduce their excessive stocks and get their house in order for price advances to profitable levels. In recent months, according to reports of the Bureau of Mines, production of both refined and crude scale wax has shown an increase. There are sufficient plant facilities to increase production of wax so that stocks might increase again and it is due to this fact that sellers are cautious and not inclined to be too enthusiastic over the recent increases in prices.

While the crude scale wax is not so scarce as the fully refined wax, the market also is strong. Buyers have found only small quantities available, the bulk of the material offered coming from small Pennsylvania refiners. Buyers the first of the week were offering from 4 to 4¼ cents for 124-126 crude scale wax.

Gasoline Market Unsettled

The gasoline market situation is not so favorable. A week ago the export market at the Gulf Coast was strong and prices were advancing steadily. These advances the first of the week were being maintained but higher levels were not in prospect until the domestic situation improves. In line with reports from other parts of the country there are weak spots in the eastern gasoline market. So far as the tank car prices at refineries and terminals are concerned, the larger refiners are maintaining the prices made effective about the middle of last month. There is some price cutting from smaller operators although this situation has not as yet become serious.

The immediate problem in the gasoline market is in the retail end. If this situation is not remedied in the near future it is certain that it will weaken the tank car and tanker markets in this territory. Reports from scattered points extending from Maine to the Gulf Coast show that major refiners and distributors are being undersold by filling station operators who are usually given the general classification of "price cutters." As discussed by the local trade there are several angles to this problem, the solution of which is not apparent at this time. When a retailer reduces the price for gasoline one or more cents per gallon under the prices established by the rest of the station operators in a given territory, the cause usually can be traced back through the tank car markets ending with the price paid for the crude oil at the wells by the refiner who refined the gasoline. For example, in this territory a large part of the gasoline sold under the market in this territory last year and early this year came from underpriced crude oil in the East Texas Field.

This situation, in one form or another, still obtains on a more limited scale, although it is certain that conditions have improved since the allowable crude production was reduced recently under the direction of the Federal Government. In the event the Government's program is carried through to its final objective and all underpriced crude oil is eliminated, this situation will continue to improve with the quantity of low priced gasoline available at Atlantic seaboard terminals reduced to a minimum.

NRA Problem

It is pointed out, however, by market observers in this territory that even if the crude oil and gasoline tank car markets are stabilized the problem of uniform prices in the retail end will still have to be solved. In this section, as in all other important consuming centers, the station operators selling at cut prices are well established. The main attraction of these sellers from the standpoint of the car owner has been the low price. The station operator has sold a satisfactory motor fuel from 1 to as high as 4 cents a gallon under the prices charged by a majority of their competitors. They have been able to do this as previously explained because in some cases they have been able to buy from refiners at low prices. Large volume, inexpensive station facilities and a minimum of free services also have given them an advantage in merchandising costs in many cases.

Under the NRA plan these station operators must stop underselling their competitors and advance their prices to the posted schedules generally recognized in the city or section in which they operate. Many of them did advance their prices when the petroleum code became effective. The volume of their business fell off immediately, reflecting the fact that motorists prefer the branded products of the well-known companies when prices are uniform.

In brief, as stated by a representative

(Continued on Page 52)

American Petroleum Institute Weekly Refinery Statistics

Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills. (3) Total motor fuel stocks. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

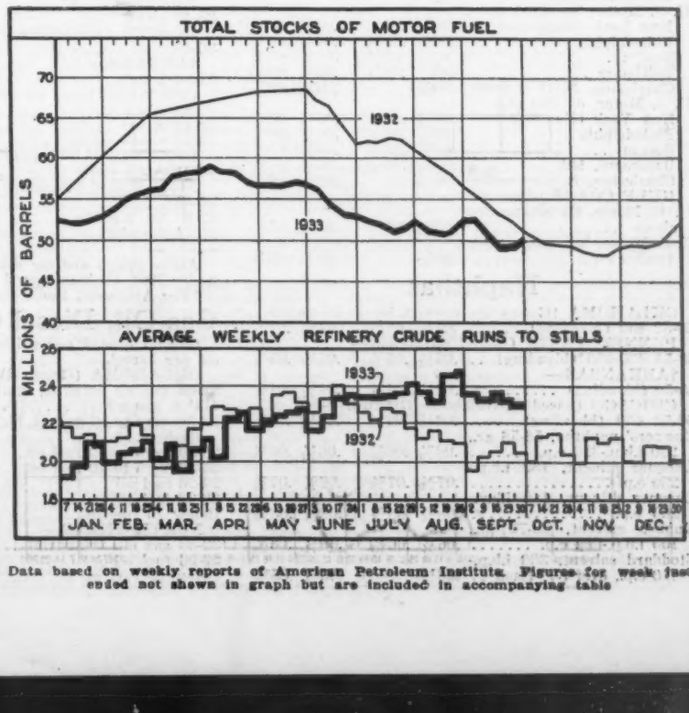
Week Ending October 7, 1933, Compared to Week Ago

	Week Ending Oct. 7, 1933				Week ending September 30, 1933			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100 0	472,000	13,525,000	9,363,000	100.0	477,000	13,541,000	9,209,000
Appalachian	92.6	85,000	1,840,000	851,000	93.6	89,000	1,894,000	842,000
Ind., Ill., Ky.	97 3	326,000	6,958,000	5,841,000	97.3	320,000	6,593,000	5,774,000
Okla., Kans. Mo.	82.1	244,000	5,293,000	4,259,000	82.1	366,000	5,215,000	4,354,000
Inland Texas	60 2	87,000	1,336,000	1,810,000	58.7	83,000	1,325,000	1,813,000
Texas Gulf	95 0	465,000	5,813,000	6,748,000	95.0	447,000	5,545,000	7,039,000
Louisiana Gulf	100.0	87,000	1,291,000	1,851,000	100.0	93,000	1,263,000	1,860,000
N. La. and Ark.	92 6	47,000	246,000	657,000	92.6	49,000	225,000	663,000
Rocky Mtn.	78.8	33,000	800,000	789,000	78.8	34,000	805,000	723,000
California	96.9	406,000	13,971,000	98,957,000	96.9	439,000	14,052,000	99,289,000
Total U. S.	92.4	2,252,000	51,073,000	131,046,000	92 2	2,312,000	50,457,000	131,566,000

Total motor fuel stocks Bureau of Mines basis 52,880,000 bbls.

Week Ending October 7, 1933, Compared to Year Ago

	Week Ending Oct. 7, 1933				Week Ending Oct. 8, 1932			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100 0	472,000	13,525,000	9,363,000	99.1	411,000	13,968,000	9,181,000
Appalachian	92.6	85,000	1,840,000	851,000	95.0	81,000	1,640,000	873,000
Ind., Ill., Ky.	97 3	326,000	6,958,000	5,841,000	97 5	266,000	6,407,000	4,119,000
Okla., Kans. Mo.	82.1	244,000	5,293,000	4,259,000	88 4	207,000	4,589,000	3,169,000
Inland Texas	60 2	87,000	1,336,000	1,810,000	72 1	95,000	1,393,000	2,081,000
Texas Gulf	98 0	465,000	5,813,000	6,748,000	98.2	387,000	4,711,000	10,501,000
Louisiana Gulf	100.0	87,000	1,291,000	1,851,000	97 3	64,000	1,483,000	4,113,000
N. La. and Ark.	92 6	47,000	246,000	657,000	94 6	41,000	188,000	551,000
Rocky Mtn.	78.8	33,000	800,000	789,000	91 4	27,000	1,253,000	481,000
California	96.9	406,000	13,971,000	98,957,000	94.6	426,000	14,978,000	100,673,000
Total U. S.	92.4	2,252,000	51,073,000	131,046,000	93.6	2,005,000	50,610,000	135,742,000



Data based on weekly reports of American Petroleum Institute. Figures for week just ended not shown in graph but are included in accompanying table

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

EXCLUSIVE OF TAXES

The following quotations are exclusive of the Federal excise taxes of 1½ cents a gallon on gasoline and 4 cents on lubricating oils, which became effective June 17, 1933.

Refinery Gasolines

	Oct. 10		Oct. 3	
OKLAHOMA (Group 3)—				
*U. S. Motor grades:				
Third grade	.04	.04¼	.04¼	.04½
Regular	.05	.05¼	.05	.05½
Premium	.05½	.05¾	.05¾	
60-62 400 grades:				
Third grade	.04¼	.04½	.04½	.04¾
Regular	.05¼	.05½	.05¼	.05½
Premium	.05½	.05⅝	.05¾	.06
64-66 390	.04⅝	.05	.04⅞	.05
64-66 375	.04⅞	.05¼	.05	
68-70 350	.05¼	.05¼	.05¼	
NORTH TEXAS—				
U. S. Motor grades:				
Third grade	.03⅞	.04⅛	.04	.04¼
Regular	.04⅜	.05	.04⅞	.05¼
Premium	.05¼	.05½	.05⅝	.05⅝
60-62 400	.04½	.04¾	.04¾	.05
64-66 390	.04⅞	.05	.05	.05⅛
64-66 375	.05⅛	.05¼	.05¼	.05¼
64-66 360	.05¼		.05¼	.05½
†NORTH LOUISIANA—				
U. S. Motor grades:				
Third grade	.04¼	.04½	.04½	.04¾
Regular	.05¼		.05½	
Premium	.05¾	.06	.06	
60-62 400	.04½	.04¾	.04¾	
†ARKANSAS—				
U. S. Motor grades:				
Third grade	.04⅜	.05⅝	.04½	.04¾
Regular	.05¼	.05⅜	.05½	
Premium	.05¾	.06	.06	
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Third grade	.04	.04¼	.04¼	.04½
Regular	.04¾	.05	.05	.05¼
Premium	.05¼	.05½	.05½	.05¾
60-62 400	.04½	.04¼	.04⅜	.04½
64-66 375	.04½	.04¾	.04⅝	.04¼
68-70 360	.04¾	.05	.04⅞	.05⅛
Aviation fighting grade	.05⅜	.05¾	.05½	.05¼

*Octane Ratings—The following octane ratings apply to the three grades of U. S. Motor gasoline: Regular 60-64 octane number, premium 65 and above octane number; third grade, 59 and below octane number. Octane ratings determined by C.F.R. Motor Method.

PENNSYLVANIA (inland refineries)—				
U. S. Motor	.05⅝	.05⅞	.05¾	.06
60-62 400	.05¾	.06	.05⅞	.06⅛
64-66 375	.06⅛	.06⅜	.06¼	.06½
68-70 350	.06⅜	.06⅝	.06½	.06¾
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.08	.09	.08	.09
58-60 400	.08¾	.09¾	.08	.09½
EAST COAST—				
U. S. Motor, below 65 octane:				
New York (Bayonne)	.06¼	.06½	.06¼	.06½
Philadelphia	.06¼	.06½	.06¼	.06½
Boston	.06½	.0670	.06½	.06¾
Baltimore	.06	.06¼	.06¼	.06½
Charleston, S. C.	.06¼		.06¼	.06½
U. S. Motor, 65 and above:				
New York (Bayonne)	.06½	.06¾	.06½	.06¾
Philadelphia	.06½	.06¾	.06½	.06¾
Boston	.06¾	.0695	.06½	.06¾
Baltimore, Md.	.06¼	.06½	.06½	.06¾
Charleston, S. C.	.06½		.06½	.06¾
GULF COAST (domestic)—				
U. S. Motor, 65 octane and above	.05¾	.06	.05¾	.05⅞
U. S. Motor, below 65 octane number	.05½		.05¾	.05½

Naphthas

OKLAHOMA (Group 3)—	Oct. 10		Oct. 3	
50-52 450 (blending)	.04½	.04¾	.04½	.04¾
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.05½	.05¾	.05½	.05¾
†ARKANSAS—				
48-50 (blending)	.04½	.04¾	.04½	.04¾
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.04⅛	.04½	.04¼	.04¾
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-320 e.p.	.06⅜	.06⅞	.06½	.06⅝
Lacquer diluent, 180 i.b.p.-250 e.p.	.07¾	.07⅞	.07¾	.07⅞
Lacquer diluent, 140 i.b.p.-200 e.p.	.08¾	.08⅞	.08¾	.08⅞
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.06¼	.06⅜	.06¼	.06⅜
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.06¼		.05¾	.05⅞
Petroleum thinner, 290-300 i.b.p., 415 e.p., over 83° flash	.05¾		.05¾	
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.06		.06	.06⅛
Petroleum spirits	.05¼	.05⅜	.05¼	.05⅜

Natural Gasolines

	Oct. 10		Oct. 3	
OKLAHOMA (Group 3)—				
Grade 18-55	.06	.06¼	.06	
Grade 26-70	.05	.05¼	.05	
Grade 30-70	.04¾		.04¾	
Low vapor pressure grades:				
15 lb. v.p. (max.)	.06¼		.06¼	
11 lb. v.p. (max.)	.06¼	.06½	.06¼	.06½
NORTH TEXAS—				
Grade 18-55	.05⅞	.06	.05¾	
Grade 26-70	.05	.05⅛	.04⅞	.05
Grade 30-70	.04⅝		.04⅝	
Low vapor pressure grades:				
15 lb. v.p. (max.)	.06		.06	
11 lb. v.p. (max.)	.06	.06¼	.06	.06¼
NORTH LOUISIANA—				
Grade 26-70	.05¼	.05⅜	.05⅛	
CALIFORNIA—				
75-85 375	.06	.07	.06	.07

Kerosenes

(All kerosenes water white)

	Oct. 10		Oct. 3	
OKLAHOMA (Group 3)—				
41-43	.03½	.03¾	.03½	.03¾
42-44	.03⅝	.03⅞	.03⅝	.03⅞
NORTH TEXAS—				
40-41	.03⅛	.03¼	.03⅛	.03¼
41-43	.03¼		.03¼	
†NORTH LOUISIANA—				
41-43	.03¾	.04	.03¾	.04
42-44	.04	.04⅛	.04	.04⅛
†ARKANSAS—				
41-43	.03⅞	.04	.03⅞	.04
PENNSYLVANIA (inland refineries)—				
45	.05¼	.05½	.04¾	.05
46	.05½	.05¾	.05	.05¼
47	.05⅝	.05⅞	.05⅛	.05⅜
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03⅜	.03½	.03⅜	.03½
42-44	.03⅜	.03⅝	.03½	.03⅝
*CALIFORNIA—				
38-40 high burning test	.04¼	.04¾	.04¼	.04¾
NEW YORK (Bayonne, N. J.)—				
41-43	.05½		.05½	
GULF COAST (domestic)—				
41-43 water white	.04¼	.04⅜	.04⅛	.04⅜

*For Pacific Coast consumption.

†For Arkansas, Louisiana and Mississippi delivery.

Furnace Oils and Tractor Fuels

	Oct. 10		Oct. 3	
OKLAHOMA (Group 3)—				
32-36 straw	.02⅞	.03⅛	.02⅞	.03⅛
36-38 straw	.02⅝		.02⅝	
38-40 straw	.02⅞	.03¼	.02⅞	.03¼
39-41 prime	.03		.03	
NORTH TEXAS—				
38-40 straw	.02⅝	.02¾	.02⅝	.02¾
†NORTH LOUISIANA—				
36-40	.03		.03	
†ARKANSAS—				
32-36	.03		.03	
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.02⅞		.02¾	.03
38-40 straw	.02⅞	.03	.02⅞	.03⅛
38-40 prime white	.03	.03⅛	.03	.03⅛
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.04	.04⅛	.04	.04⅛
NEW YORK (Bayonne, N. J.)—				
36-40	.05½		.05½	
32-36 No. 2 grade	.04½		.04½	
21 (industrial)	.04		.04	

Above prices are for distillate oils of zero cold test under 190° flash and good odor.

†For Arkansas, Louisiana and Mississippi delivery.

Gas Oil, Diesel Oil and Fuel Oil

Gas oil quoted per gallon basis; Diesel oil and fuel oil per barrel.

	Oct. 10		Oct. 3	
OKLAHOMA (Group 3)—				
32-36 gas oil cracking stock	.01⅞	.02⅛	.01⅞	.02⅛
U.G.I. gas oil	.02		.02	
32-36, zero to 15 gas oil, high flash	.02¼	.02⅜	.02¼	.02⅜
28-30, zero to 10 fuel oil	.80	.85	.80	.85
26-30, zero to 10 fuel oil	.80		.80	
24-26 fuel oil	.60	.65	.60	.65
20-22 fuel oil	.55	.60	.55	.60
Below 16 fuel oil	.50	.55	.50	.55
NORTH TEXAS—				
32-36 gas oil, industrial	.02		.02	
22-26 fuel oil	.57½	.62½	.57½	.62½
Below 20 fuel oil	.47½	.50	.47½	.50
†NORTH LOUISIANA—				
32-36 gas oil, zero	.03		.03	
14-16 fuel oil	.50	.60	.50	.60
†ARKANSAS—				
30-32 gas oil, zero	.02¾	.03	.02¾	.03
14-16 fuel oil	.50	.55	.50	.55
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.01⅞		.01¾	.02
28-30 (zero) fuel oil	.85	.92½	.85	.95
26-28 (zero) fuel oil	.75	.77½	.75	.80
22-26 (zero) fuel oil	.65	.67½	.65	.70
18-22 (zero) fuel oil	.57½	.60	.57½	.62½
Below 18 fuel oil	.42½	.47½	.45	.50

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all areas than shown in above tables.

†For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
36-40	.03¾	.03⅞	.03⅝	.03¾
CALIFORNIA—				
30-34 gas oil per bbl.	.90	1.05	.90	1.05
27 plus Diesel	.90	1.00	.90	1.00
15-19 bunker (at tidewater)	.55	.65	.55	.65
15-19 (cargo lots)	.50	.60	.50	.60
15-19 (tank cars)	.45	.65	.45	.60
GULF COAST—				
28-30 gas oil	.03⅜	.03½	.03	
28-30 Diesel	1.80		1.70	1.80
Bunker C (bulk cargoes)	.92½	.95	.92½	.95
Bunker C (bunkers)	.95		.95	
NEW YORK (Bayonne, N. J.)—				
28 plus, gas oil	.04½		.04½	
28-30 Diesel (lighterage 6½ cents per bbl.)	1.95		1.95	
28-30 Diesel (tank cars)	.04½		.04½	
Bunker C (to ocean-going ships in N. Y. harbor)	1.10		1.10	

Petroleum Coke*

Prices per ton f.o.b. refineries in Chicago area.

	Oct. 10	Oct. 3
Pile run (screenings)	5.25	5.25
Direct from still	6.25	6.25
Lump and egg	7.00	7.00

*Refineries will absorb freight to 80 cents a ton.

Neutral Oils

(Viscosity at 100° F. and color)

	Oct. 10		Oct. 3	
OKLAHOMA (Group 3)—				
Zero to 10 Cold Test:				
150-3	.07¼	.07½	.07¼	.07½
180-3	.08⅛	.08¾	.08½	.08¾
180-4	.08¼	.08½	.08¼	.08½
200-3	.09	.09¼	.09	.09¼
200-4	.08¾	.09	.08¾	.09
240-3	.11	.11¼	.11	.11⅓
240-4	.10¾	.11	.10¾	.11
280-3	.12	.12¼	.12	.12¼
280-4	.11½	.11¾	.11½	.11¾
300-3½	.12¾	.13	.12¾	.13
350-3½	.13¾	.14	.13¾	.14
400-4	.14¾	.15	.14¾	.15
500-4½	.15¾	.16	.15¾	.16
100-2 paraffin oil	.05¼	.05½	.05¼	.05½
15-30 Cold Test:				
200-3	.08¼	.08½	.08¼	.08½
200-4	.08	.08¼	.08	.08¼
240-3	.10¼	.10½	.10¼	.10½
240-4	.10	.10¼	.10	.10¼
280-3	.11¼	.11½	.11¼	.11½
280-4	.11	.11¼	.11	.11¼
PENNSYLVANIA—				
150 vis., No. 3, 400-405:				
Zero pour test	.17	.17½	.17	.17½
10 pour test	.16½	.16¾	.16½	.16¾
15 pour test	.15	.15¼	.15	.15¼
25 pour test	.14¼	.14½	.14¼	.14½
180 vis., No. 3, 25 pour test	.16¾	.17	.16¾	.17
200 vis., No. 3:				
Zero pour test	.21½	.21¾	.21½	.21¾
10 pour test	.20½	.20¾	.20½	.20¾
15 pour test	.19½	.19¾	.19½	.19¾
25 pour test	.19¼	.19½	.19¼	.19½
GULF COAST—				
Pale Oils:				
100-2-2½	.04½		.04½	
200-3	.06½		.05¾	.06
300-3	.07	.07½	.06½	
500-3½	.07¾	.08¼	.07¼	.07½
750-3½	.08½	.09	.08¼	.08¾
1,200-3½	.09⅛	.09½	.09	.09½
2,000-4	.10	.10½	.10	.10¼
Red Oils:				
200-5-6	.05½		.04½	
300-5-6	.06	.06½	.05½	.05⅝
500-5-6	.06¾	.07¼	.06¼	.06½
750	.07½	.08	.07¼	.07½
1,200-5-6	.08¼	.08¾	.08	.08½

2,000-6 plus	.09½	.09¾	.09	.09¼
CALIFORNIA—				
Pale Oils:				
100-2½-3	.09	.09½	.09	.09½
200-2½-3	.09½	.10	.09½	.10
300-3-3½	.10½	.11	.10½	.11
350-3-4	.11	.11½	.11	.11½
400-3-4	.11½	.11¾	.11½	.11¾
450-3-4	.11¾	.12	.11¾	.12
500-3-4	.12	.12½	.12	.12½
Red Oils:				
200-4-5	.09½	.10	.09½	.10
300-5-6	.10½	.11	.10½	.11
350-5-6	.11	.11½	.11	.11½
400-5-6	.11½	.11¾	.11½	.11¾
450-5-6	.11¾	.12	.11¾	.12
500-5-6	.12	.12¼	.12	.12¼
600-5-6½	.12¼	.12½	.12¼	.12½
700-6½ plus	.12½	.12¾	.12½	.12¾
750-6½ plus	.12¾	.13	.12¾	.13
900-6½ plus	.13	.14	.13	.14

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Oct. 10		Oct. 3	
630 light green	.06¾	.07¾	.06¾	.07¾
600 light green S.R.	.06¼	.07¼	.06¼	.07¼
600 dark green S.R.	.04¾	.05¾	.04¾	.05¾
Bright Stocks:				
190-200 D	.24	.25	.24	.25
150-160 D, 0-10	.22¼	.22½	.22¼	.22½
150-160 D, 10-25	.21¾		.21¾	
150-160 D, 25-40	.21¼		.21¼	
150-160 E	.20½		.20½	
PENNSYLVANIA—				
600 S.R.	.16	.16¼	.15½	.15¾
650 S.R.	.18	.18¼	.17¾	.18
600 Pennsylvania flash	.19	.19¼	.18¾	.19
650 D filtered	.23¾	.24	.23¼	.23½
600 E filtered	.19¼	.19½	.18¾	.19
Pennsylvania Grade bright stock:				
No. 8 color, 145-50 at 210; 540-550 flash:				
10 pour test	.27½	.27¾	.27½	.27¾
15 pour test	.26	.26½	.26	.26½
25 pour test	.25	.25½	.25	.25½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Oct. 10		Oct. 3	
124-126 white crude scale	.03½	.03¾	.03½	.03¾
PENNSYLVANIA—				
122-124	.03¾	.03⅞	.03¾	.03⅞
124-126	.03⅞		.03⅞	
NEW YORK HARBOR—				
120-122 (a.m.p. basis)	.04	.0410	.0362	
125-127	.04¼	.0480	.0375	.0380
130-132	.0465		.0420	
133-135	.0530		.0480	
135-137	.0555		.0505	
Petrolatum in barrels in carload lots:				
Dark green	.01⅝		.01⅝	
Amber	.02¼	.02½	.02¼	.02½
Extra amber	.02⅝		.02⅝	
Lily white	.06	.06¼	.06	.06¼
Snow white	.07	.07¼	.07	.07¼
Cream	.04¼	.05	.04¼	.05
CHICAGO (f.o.b. switching district)*—				
122-124	.0440	.0450	.0440	.0450
125-127	.0465	.0475	.0465	.0475
127-129	.0480	.0490	.0480	.0490
130-132	.0540	.0550	.0540	.0550
132-134	.0565	.0575	.0565	.0575

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx.
Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	Oct. 10		Oct. 3	
U. S. Motor	.05½	.05⅝	.05⅝	.05½
60-62 400	.05⅝	.05¾	.05½	.05⅝
61-63 390	.05¾	.05⅞	.05⅝	.05¾
64-66 375	.06		.06	
LOS ANGELES, CALIF.—				
U. S. Motor grades:				
53-55 octane	.04½	.05	.04½	.05
55-65 octane	.05	.05¼	.05	.05¼
65-67 octane	.05½	.06	.05½	.06
67-69 octane	.06¼	.06¾	.06¼	.06¾
Above 69 octane	.07	.08	.07	.08
58-60 400 endpoint	.05¼	.06¼	.05	.06
KEROSENE				
GULF COAST—				
41-43 prime white	.04½	.04½	.04¼	
41 water white	.04¼	.04⅜	.04¼	.04⅜
LOS ANGELES, CALIF.—				
41-43 water white	.03¾	.04¼	.03¾	.04¼
LUBRICANTS				
NEW YORK (f.a.s. in bbls.)—				
600 Warren E	.27¼		.26¾	
600 S.R. unfiltered	.24		.22	
650 S.R. unfiltered	.26		.24½	
600 flash S.R.	.27		.25½	
630 flash S.R.	.31¾		.30¼	
Bright stock, No. 8 color	.33		.33	
Bright stock, No. 6½ color dil.	.32½		.32	
NEUTRALS				
NEW YORK—Pale Engine Oil, Bulk (vis. at 100)—				
23°-3¾	.13	.13½	.13	.13½
180-3¼	.12	.12½	.12	.12½
100-2¼	.06½	.06¾	.06	
Red Engine Oil, Bulk (vis. at 100):				
300-6½	.09	.10	.09	.10
250-6	.08¾	.09¼	.08¾	.09¼
200-6	.08½	.08¾	.08½	.08¾
PARAFFIN WAX (Fully Refined)				
NEW YORK (prices per pound)—				
123-125 a.m.p.	.04¼	.04¼	.04⅛	.04¼
125-127 a.m.p.	.04¼	.04⅜	.04¼	.04⅜
13 -132 a.m.p.	.04⅜	.04⅞	.04⅜	.04⅞
133-135 a.m.p.	.05¼	.05⅝	.05¼	.05⅝
135-137 a.m.p.	.05½	.05⅝	.05½	.05⅝

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas $1.00
Stratman, Kans. (Sept. 29, 1933) 1.08
Corsicana (heavy) (June 17, 1933)* ..... .30
Other fields.....(See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co. and Empire Oil & Refining Co.
*Magnolia Petroleum Co. †Eldorado Refining Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933) ..... $.75
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933) ..... .70
Pecos County, Yates shallow pool (Sept. 29, 1933)* ..... .65
Jones and Fisher Counties..See gravity table

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.
*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers.....
.....(See gravity table)
Tomball (see note)* $1.15
Livingston (Sept. 29, 1933)† 1.00
Greta (Sept. 29, 1933) ..... .85
Refugio, light.....(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡..... .85
Markham and High Island.....
.....(See Gulf Coast gravity table)
Conroe.....(See Conroe gravity table)

Note—Tomball, effective September 29, by Humble Oil & Refining Co., and October 2 by Magnolia Petroleum Co.
*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy, by Humble Oil & Refining Co.

South Central and Southwest Texas

(See note below table)

Darst Creek ..... $.87
Mirando ..... .80
Luling (Sept. 29, 1933) ..... .75
Pettus 1.05
Salt Flat ..... .87
Lytton Springs (Sept. 29, 1933) ..... .95
Duval County (Sept. 29, 1933) ..... .80
Saxet ..... .85

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by Humble Oil & Refining Co. and Texas Co. Effective September 29 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Ilas, light (Sept. 29, 1933) ..... $.96
Ilas, heavy (Sept. 29, 1933) ..... .90
Florence, Colo. (June 17, 1933) ..... .30
Fort Collins and Wellington, Colo. (June 17)..... .....(See Salt Creek prices)
Big Muddy (Sept. 29, 1933) 1.01
Frannie, light (Sept. 29, 1933) ..... .87
Frannie, heavy (Sept. 29, 1933) ..... .62
Salt Creek and La Barge (Sept. 9, 1933)
See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933) 1.18
Grass Creek, heavy (Dec. 15, 1932)..... .45
Elk Basin (Sept. 29, 1933) 1.18
Rock Creek (Sept. 29, 1933) 1.02
Dutton Creek (July 8, 1933).....
.....See Mid-Continent gravity prices

(Continued on Page 31)

Crude Oil Gravity Table

Degrees gravity—	Oklahoma and Kansas	North Texas, Central Texas and East Central Texas	North Louisiana and Arkansas	Gray County, Texas	Carson, Hutchinson and Moore Counties, Texas	Conroe, Texas	Salt Creek, Wyo.	Gulf Coast, Texas and Louisiana	Gulf Coast, Texas and Louisiana	Caddo, Louisiana	Sabine-DeSoto, Louisiana	Homer, Louisiana	Sarepta-Carterville, Louisiana	El Dorado, Arkansas	Haynesville, Louisiana	Miller County, Arkansas	Cotton Valley, Louisiana
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Below 20	....	....	....	....	....	....	....	$.82	$.82	....	....	....	....	....	....	....	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....	....	....	....	....	....	....	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....	....	....	....	....	....	....	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....	....	....	....	....	....	....	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....	....	....	....	....	....	....	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....	....	....	....	....	....	....	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.63	$.69	$.71	$.75	$.75	$.65	$.62	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.65	.71	.73	.77	.77	.67	.64	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.67	.73	.75	.79	.79	.69	.66	.74
27-27.9	* 82	....	....	....	....	....	....	.98	.98	.69	.75	.77	.81	.81	.71	.68	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.71	.77	.79	.83	.83	.73	.70	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....	....	....	....	....	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.73	.79	.81	.85	.85	.75	.72	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.75	.81	.83	.87	.87	.77	.74	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.77	.83	.85	.89	.89	.79	.76	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.79	* .85	.87	.91	.91	.81	.78	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1 07	.81	.87	.89	.93	.93	.83	.80	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.83	.89	.91	.95	.95	.85	.82	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.85	.91	.93	.97	.97	.87	.84	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.87	.93	.95	.99	.99	.89	.86	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1 11	.89	.95	.97	1.01	1.01	.91	.88	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.91	.97	.99	1.03	1.03	.93	.90	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	.93	.99	1.01	1.05	1 05	.95	.92	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	.95	1.01	1.03	1.07	1.07	.97	.94	1.02

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedules: Below 25 degrees, 76 cents; 25-25.9 degrees, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08: Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co. and Wilcox Oil & Gas Co. All others begin their schedule at below 29 degrees, 84 cents, excepting Philtex Oil Co. which begins with below 31 degrees at 83 cents.

Column 1—Effective September 29, The Texas Co. in Oklahoma, Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; The Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Philtex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; on October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, by the Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29 in the Van Pool, Van Zandt County, the Pure Oil Co. posted below 29 degrees, 84 cents, with 2 cents added for each degree up to 40 and over at $1.08.

Column 3—Effective September 29 by the Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective September 29, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 25 degrees, 63 cents, with 2 cents added for each degree up to 40 and over at 95 cents. For Standard Oil Co. of Louisiana's prices see Columns 10 to 16, inclusive.

Column 4—Effective September 29 by the Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co. and H. F. Wilcox Oil & Gas Co. On same day Philtex Oil Co. posted below 31 degrees, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents.

Column 5—Effective September 29 by the Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Philtex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents.

Column 6—Effective September 29 by the Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30 by the Texas Co. which on September 29 had posted a schedule of $1.07 to $1.12, with a 1-cent spread on each degree.

Column 7—Effective September 29 by the Stanolind Oil & Gas Co.

Column 8—Effective September 29 by the Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana: 20-20.9 degrees, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12 and in Cameron Meadows and Iowa, Louisiana: Below 20 degrees, 72 cents, with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 20 degrees, 70 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.00; and in Black Bayou and White Castle, Louisiana: Below 20 degrees, 80 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.10.

Column 9—Effective September 30, the Texas Co. (On September 29, the Texas Co. had posted a schedule 2 cents lower on each degree, but changed it on September 30.)

Columns 10, 11, 12, 13, 14, 15, 16—Effective September 29, by the Standard Oil Co. of Louisiana and Louisiana Oil Refining Co.

Column 17—Effective September 29, by the Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 31)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

October 10, 1933

Taxes

The gasoline quotations given in the following tables include the 1½-cent Federal tax effective June 17, 1933, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third or competitive grade is available at 1 or more cents per gallon under the service station price for the regular grade. Ethyl Gasolines are sold 2 cents above the service station price for the regular grade.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	22.0	22.0	7.5	14.0
Augusta	22.0	22.0	7.5	14.0
Macon	22.0	22 0	7.5	14.0
Savannah	22.0	22.0	7.5	14.0
Birm'ham, Ala.	24.0	24.0	8.5	13.5
Mobile	23.0	23.0	8.5	12.5
Montgomery	25.0	25.0	8.5	14.5
Jackson, Miss.	22.0	22 0	7.5	13.0
Vicksburg	20.5	20.5	7.5	13.0
Jack'ville, Fla.	22.0	22.0	8.5	12.5
Miami	22.0	22.0	8.5	12.5
Pensacola	20.0	20.0	8.5	13.5
Tampa	22.0	22.0	8.5	12.5
Lexington, Ky.	19.0	19.0	6.5	11.0
Covington	21.0	21.0	6.5	11.0
Louisville	19.0	19.0	6.5	11 0
Paducah	19.5	19.5	6.5	11.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2½ cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1-cent state tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1-cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	16.5	19.5	5.5	8.5
Fort Worth	16.5	19.5	5.5	8.5
Houston	16 5	19.5	5.5	8.5
San Antonio	16.5	19.5	5.5	8.5
El Paso	16.5	19 5	5 5	8 5
Texarkana	*19.5	19.5	5.5	10.0
Muskogee	17 0	19.5	5.5	9.5
Okla. City	17.0	19.5	5.5	8.5
Tulsa	17.0	19.5	5.5	8.5
Ft. Smith Ark.	*17.9	17.9	5.5	9.0
Little Rock	*20.4	20.4	7.5	9.0

*Less 2 cents to dealers.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago	17.8	17.8	4.5	9.7
Decatur, Ill.	18.2	18.2	4.5	10.2
E. St. Louis	17.5	17.5	4.5	9.5
Joliet	18.2	18.2	4.5	10.2
Peoria	18.2	18.2	4.5	10.2
Quincy	15.8	15.8	4.5	10.0
Davenport, Ia.	18.1	18.1	4.5	10.1
Des Moines	18.1	18.1	4.5	9.0
Mason City	18.1	18.1	4.5	10.1
Sioux City	17.7	17.7	4.5	9.7
Duluth, Minn.	18.7	18.7	4.5	10.4
Mankato	18.8	18.8	4.5	10.2
Minneapolis	18.4	18.4	4.5	10.4
LaCrosse, Wis.	19.8	19.8	5.2	10 9
Green Bay	19.2	19.2	5.5	10.2
Milwaukee	18.7	18.7	5.5	9.7
Madison	18.9	18.9	5.5	9.9
Detroit, Mich.	18.0	18 0	4.5	10.5
Grand Rapids	18.2	18.2	4.5	10.2
Saginaw	18.5	18.5	4.5	10.5
Evansville, Ind.	19.0	17.5	5.5	10.0
Indianapolis	19.2	19.2	5.5	10 2
South Bend	19.5	19.5	5.5	10.5
Fargo, N. Dak.	20.1	20.1	4.5	12.1
Huron, S. Dak.	20.4	20.4	5.5	11.4
Sioux Falls	19 9	19.9	5.5	10.9
K. C., Mo.*	17.2	17.2	4.5	7.5
Springfield*	17.1	17.1	4.5	9.1
St. Louis	16.2	16.2	4.0	8.7
St. Joseph*	16.8	16 8	4.5	8.8
Wichita, Kans.	16.1	16.1	4.5	8.1
Bartlesville, Ok.	16.5	17.0	5.5	9.5

*State tax 2 cents, 1-cent city tax and 1½-cent Federal tax.

Effective June 1, 1933—Discounts off tank wagon price to consumers on 500 gallons or more per month in territory outside of Chicago metropolitan area: 2 cents on Ethyl and Red Crown gasolines, and 1 cent on Stanolind gasoline. One-half cent additional discount in Chicago division.

Effective July 1, 1933—Discounts on resellers authorized agent's agreement made off the service station price throughout the territory as follows: 2.5 cents on Red Crown Ethyl and Standard Red Crown gasolines, and 1.5 cents on Stanolind gasoline. Half of reduction from normal service station price shall be absorbed by resellers up to maximum of 1 cent on all grades.

Stanolex Furnace Oil in Chicago

Effective September 13, 1933, prices f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), under 100 gallons, 8¼ cents; No. 2 (30-34 stw zero), 7¾ cents; No. 3 (22-26 zero), 7½ cents; No. 4 under 300 gallons (12-16 zero), 6¼ cents; viscosity of No. 4, 90-115 at 100° F.; No. 5 under 300 gallons, 6 cents; for deliveries of 100 gallons or more deduct 1 cent.

Naphtha

	Tank: Wagon	Tank: Car
Oleum spirits	11.9	7.69
V.M.&P. naphtha	15.9	8.44
Cleaners' naphtha	15.0	8.94
Stanisol	15.0	8 19

Prices f.o.b. Chicago, September 13, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	19.2	18.7	4.5	10.0
Newark	18.5	18.0	4 5	9.5
Annapolis, Md.	19.8	19.3	5.5	10.0
Baltimore	19.3	18.8	5.5	9.0
Cumberland	20.8	20.3	5.5	12 ?
Wash'g'n, D. C.	17.5	17.0	3.5	11.0
Danville, Va.	21.9	21.4	6.5	12.9
Norfolk	20.4	19.9	6.5	11.3
Petersburg	21 2	20 7	6.5	12 4
Richmond	20.8	20.3	6.5	11.7
Roanoke	22.0	21.5	6 5	12 0
Charls'n, W.Va.	20.2	19.7	5.5	12.6
Parkersburg	19.5	19.0	5.5	11.2
Wheeling	20.2	19.0	5.5	12.2
Charlotte, N. C.	22.6	23.1	7.5	13.5
Hickory	23.9	23.4	7.5	13.7
Mt. Airy	23.9	23.4	7.5	13.8
Raleigh	23 4	23.9	7.5	13.3
Salisbury	23.7	23.2	7.5	13.6
Charleston, S.C.	21.4	20.9	7.5	11.3
Columbia	23.3	22.7	7.5	13.3
Spartanburg	23.6	23.1	7.5	13.5

Note—Dealer contracts for gasoline are written at 2½ cents over the posted tank car price. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	20 3	20 3	*7 5	†12.0
Baton Rouge	20 0	19 5	6.5	†12 0
Alexandria	20.9	20.4	*7.5	†12 0
Lafayette	21.1	20.6	*7 5	†12.0
Lake Charles	21 0	20 5	*7 5	†12 0
Shreveport	18 3	18.3	6 5	†12 0
Knoxville, Tenn.	24.2	23.7	8 5	12.5
Memphis	22.6	22.1	8.5	10.0
Chattanooga	23.9	23.4	8.5	10.0
Nashville	23.5	23.0	8.5	10 0
Bristol	24.1	24.6	8.5	13.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax.

Effective June 2, 1933, station prices fixed at 7 cents above basic tank car price at key refining points in territory. Commercial consumers for tank wagon delivery pay following amounts over tank car price basis yearly deliveries:

1,000 to 75,000 gallons	2.5
75,000 to 300,000 gallons	1 5
Over 300,000 gallons	1.0

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank track†	Gasoline: Posted retail	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco	17.5	20.5	4.5	12.5
Los Angeles	17.0	20.0	4.5	12.5
Fresno, Calif.	18.5	21.5	4.5	14.0
Phoenix, Ariz.	18 5	21.5	6.5	‡16.0
Reno, Nev.	21.0	24.0	5.5	15.5
Portland, Ore.	20.0	23.0	5.5	13.5
Seattle, Wash.	20 0	23.0	6.5	13.5
Spokane	23.0	26.0	6.5	18.0
Tacoma	20.0	23.0	6.5	13.5

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent. ‡Includes 5-cent state tax.

New York and Part of New England District

STANDARD OIL CO. OF NEW YORK

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	17.1	16.1	4.5	9.5
New York	17.0	18 0	4.5	8 5
Buffalo	17.7	18.7	4.5	9.5
Rochester	17.8	18.8	4.5	9.5
Syracuse	17.6	18.6	4.5	9.0
Boston, Mass.	17.0	18.0	4.5	8.5
Augusta, Me.	18.5	19.5	5.5	9.0
Manch'tr, N. H.	19.2	20.2	5.5	8.5
Burlington, Vt.	19.8	20.8	5.5	9.0

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Philadelphia, Pa.	16.5	17.0	4.5	10.0
Pittsburgh	17.0	18.0	4.5	10.0
Allentown	17.0	18.0	4.5	10 0
Erie	17.0	18.0	4.5	10.0
Scranton	17.0	18.0	4.5	10.0
Altoona	17.0	18.0	4.5	10.0
Dover, Del.	17.0	18.0	4.5	10.0
Wilmington	17.0	18.0	4.5	10.0
Boston, Mass.	17 0	18 0	4.5	8.5
Springfield	17.6	18 6	4 5	8 5
Worcester	17.5	18.5	4.5	8 5
Hartford, Conn.	16 4	17 4	3.5	8.5
New Haven	16 2	17 2	3 5	8 5
Providence, R.I.	16 0	17 0	3.5	8.5

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	19.0	21.5	5.5	12.5
Pueblo	19 0	21 5	5 5	13 0
Grand Juctn.	21 0	23.5	5.5	15.0
Casper, Wyo.	19.5	22.0	5.5	11.0
Cheyenne	18.0	20.5	5.5	13.0
Butte, Mont.	21 0	23 5	5 5	17 5
Billings	23.0	25.5	6.5	16.5
Helena	23.0	25 5	6.5	17.5
Great Falls	22.5	25.0	6.5	17.5
Salt Lake, Utah	22 0	24.5	5 5	15 0
Boise, Idaho	23.0	25.5	6.5	18.0
Twin Falls	23.0	25.5	6.5	18.0
Albu'que, N. M.	19.5	22.5	*7.5	13.0

*One-cent city tax.

Effective June 1, 1933, dealers and lease and license accounts will receive 2½ cents discount on regular gasoline in Montana, Colorado, Wyoming, Utah and Idaho.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points	17.0	18.0	5.5	*12.5

*Includes state tax of 1 cent, effective July 22.

Canada*

IMPERIAL OIL, LTD.
Imperial 3-Star Gasoline

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Hamilton, Ont.†	26.5	27 5	8 0	17 5
Toronto, Ont.†	26 5	27.5	8.0	17.5
Brandon, Man.*	31 0	34 5	7.0	22 5
Winnipeg, Man.	28.0	31.5	7 0	19.5
Regina, Sask.	31 0	35 0	6.0	23.5
Saskatoon, Sask.	33.0	37.0	6 0	25 5
Edmonton, Alta.	31 5	35.5	6 0	24 5
Calgary, Alta.	28.0	32 0	6.0	21.0
Vanc'ver, B. C.†	30.0	31.0	7.0	24.0
Montreal, Que.	24 0	27 0	6.0	17.0
St. Johns, N. B.	26 5	30.5	7.0	21.0
Halifax, N. S.	25.5	29.5	6.0	21.0

*Imperial gallon used in Canada. †Dealer discount posted tank wagon on gasoline in Ontario and British Columbia subject to dealer's discount of 3 cents per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	18.8	19.8	5.5	10.8
McCook	17 5	17 5	5 5	10 0
Norfolk	19.3	20 3	6 5	11 3
N. Platte	20.3	21 3	5.5	10.5
Scottsbluff	19.8	19.8	6.5	11.0

Note: Discount to dealers and AAA commissions. From service station price: Red Crown Ethyl and Standard Red Crown gasoline, 2 cents. Reliance (third grade) gasoline, 2 cents. Rentals under lease and agents agreement, one-half cent per gallon additional.

Discount to consumers under contracts (large consumers under contracts and governmental units): On tank wagon deliveries of gasoline on monthly purchases of 500 gallons, or yearly purchases of 6,000 gallons, from the service station price: Red Crown Ethyl and Standard Red Crown Gasoline, 2 cents per gallon; Reliance (third brand) gasoline, 1 cent per gallon.

TANK WAGON CHANGES

The Standard Oil Co. of Kentucky, September 14, advanced the tank wagon price of kerosene 2 cents in Vicksburg and Jackson. September 15 it advanced the kerosene price 1 cent in Louisville and Lexington and 2 cents in Paducah. On the same date it reduced the kerosene price one-half cent in Covington. September 22 it advanced the kerosene price 1 cent in Augusta and Macon and 2 cents in Atlanta. September 27 it advanced the kerosene price one-half cent in Mobile and one-half cent in Birmingham and Montgomery. September 23 it reduced the gasoline prices 2 cents in Lexington. September 25 the company reduced the tank wagon and service station prices of gasoline 1½ cents in Vicksburg. September 29 it reduced the gasoline prices 1 cent in Louisville. September 30 it reduced gasoline prices 1½ cents in Paducah.

The Standard Oil Co. of New Jersey, October 4, advanced the tank wagon price of gasoline .7 cent in Wheeling.

The Continental Oil Co., September 23 reduced the tank wagon and service station prices of gasoline 1 cent in Helena, Boise and Twin Falls. In Great Falls it posted 22.5 cents and 25 cents as the tank wagon and service station prices, respectively.

The Standard Oil Co. of Nebraska, September 29, advanced the tank wagon and service station prices of gasoline 1 cent in Scottsbluff.

Imperial Oil, Ltd., October 3, reduced the tank wagon price of kerosene 1½ cents in Halifax and St. Johns.

CRUDE OIL CHANGES

Effective October 4 the South Penn Oil Co. increased the price of all Pennsylvania grades of crude oil 10 cents per barrel. The Tide Water Oil Co., Pure Oil Co., and other purchasers, also increased 10 cents to meet the South Penn's increase.

CANADIAN IMPORTS SHOW GAIN

OTTAWA, Ontario, Oct. 9.—Imports of petroleum and asphalt and their products into Canada in July, 1933, were valued at $2,961,936, an advance of 32.5 per cent over the June valuation of $2,235,435. In July the United States supplied 67.5 per cent of these imports; Colombia, 11.5; Peru, 9.7; Trinidad, 6.9; Dutch West Indies, 2.7 with the remainder scattered. Crude petroleum imported in July amounted to 118,271,491 gallons. This was distributed as follows: United States, 77,678,436; Colombia, 16,026,329; Peru, 14,399,335; Dutch West Indies, 6,129,521; Venezuela, 3,714,406; Trinidad, 323,467.

CARLOT MARKETERS ORGANIZE

CHICAGO, Oct. 9.—Articles of incorporation are being prepared for an organization of carlot marketers of petroleum products in the Chicago district. Following several informal preliminary meetings incorporation definitely was decided upon at a meeting held September 28 in the Illinois Athletic Club, Chicago. R. M. McNeily of the Refiners Petroleum Co. is slated as the first president. Carlot marketers take the position that their functions should be outlined definitely in the NRA code. It is expected the Chicago organization will work on important questions in co-operation with a marketing group recently formed in Pennsylvania.

PURE OIL CONDUCTS SCHOOL

HICKORY, N. C., Oct. 9.—The Pure Oil Co. conducted a school at Hickory last week for its representatives in this area, embracing station operators from Morganton, N. C.; Valdese, N. C.; Newton, N. C.; Concover, N. C., and intervening territory.

CIRCULATION 80,000

BIG NEWS

Published by Sinclair Refining Company (Inc.), 45 Nassau Street, New York, N. Y.

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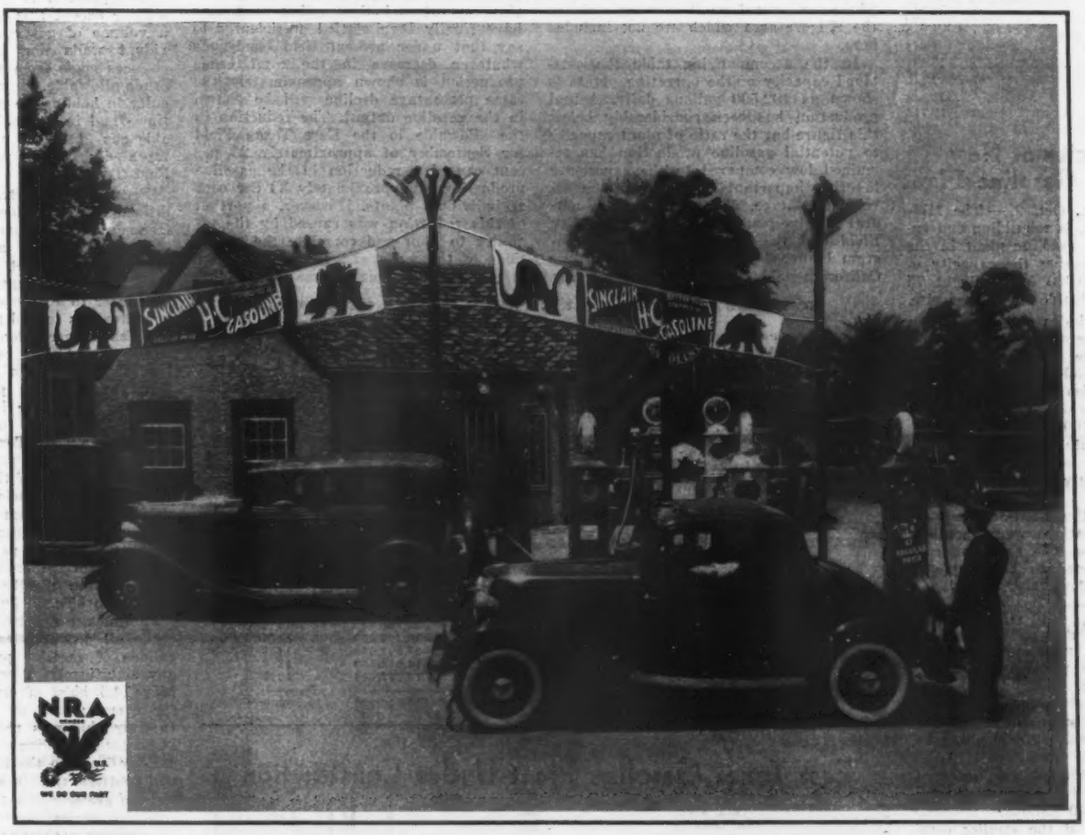

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NATURAL GASOLINE MANUFACTURE

Canada Largest August Natural Gasoline Buyer

In August a total of 172,716 bbls. of natural gasoline were exported which had a value of $387,330, according to the latest report of the Department of Commerce. Canada took more of the material than any other country.

A summary of the volume taken by each country and the courts through which this was cleared appears below:

VOLUME OF NATURAL GASOLINE IMPORTED FROM THE UNITED STATES IN AUGUST

	Bbls.
Canada	126,104
Mexico	24
Netherland West Indies	46,588
Total	172,716

CUSTOMS OFFICES CLEARING

	Bbls.
St. Lawrence	3,605
Buffalo	11,961
Sabine	19,273
Galveston	127,674
San Diego	24
Montana and Idaho	1,847
Dakota	3,469
Superior	356
Michigan	4,477
Total	172,716

Double Capacity of New Midland Gasoline Plant

HOUSTON, Tex., Oct. 9. — The Midland Gasoline Corp. is rebuilding and enlarging its natural gasoline plant in the Conroe Field, increasing the capacity of the plant to 28,000,000 feet daily at 75 pounds, or about double its former size.

Construction includes the installation of a new 4'x43' fire still, four Braun oil coolers, six sections of Braun heat exchangers and two 150-horsepower boilers. Additional lines also are being laid to various parts of the field. At present the company has over 100 miles of lines.

The plant, the only one of its kind in the field, originally was completed early this year. It recently was damaged by fire.

The fire did relatively little damage to the plant and operations were curtailed for only a few days. The new construction work is expected to be completed within another 30 days.

IN UNUSUAL POSITION

Natural gasoline manufacturers now find themselves in a position to hold up their prices without being afraid they will be left high and dry on the following day. Shipments of natural gasoline moving on export orders for loading at the Gulf have been exceptionally large and estimates place the volume purchased over September and to be delivered over October at 40,000,000 gallons.

All of the stocks of the smaller companies have been absorbed and with the exception of one large manufacturer there is no immediate source of supply to fill any new orders calling for prompt shipment.

Efforts are being made now to hold the price within a range that will not discourage refinery buying. There is a division of opinion on what effect a 5 to 5¼-cent price will have on the domestic buyer after he has fulfilled his bare needs. It is certain that the present fast rate of foreign and Atlantic Coast buying will not keep up indefinitely but apparently there is already enough business in the mill to guarantee such a price level for weeks into the future. Any improvement in refinery gasoline prices would of course be expected to be reflected in the natural market.

East Texas District Is Likely to Double Natural Gasoline Yield in 4 Months

Although the East Texas Field has not been looked upon as a major source of natural gasoline attention is now being turned to it. New plants are nearing completion that will add materially to present production and several other plants have been proposed.

Natural gasoline plant operators are daily adding connections to their older plants and within another six months the production of all plants will probably be two or three times that at present.

At present there are nine operating plants in the field. One large unit has just been completed, another is in the process of construction and two others have been rather definitely decided upon. There are several small recovery units in the Kilgore area which are not included here.

In the accompanying table the combined capacity of the operating plants is shown as 192,500 gallons daily. Actual production has been considerably below this figure but the ratio of plant capacity to potential gasoline production has remained low compared to the experience in other important fields during the development stage. The overbuilding of natural gasoline plants in the Oklahoma City Field and the liberal construction program launched in the various important California fields at times in the past may be recalled to strengthen the statement above.

At present the gasoline production is approximating 65,000 gallons daily according to the best estimates available. The latest actual figures are those in the monthly reports of the Bureau of Mines for July. During that month 1,900,000 gallons of natural gasoline were manufactured or approximately 60,000 gallons a day.

It is difficult to draw any accurate conclusions from a comparison of figures showing total gasoline production and crude production because of the erratic operating conditions in the field itself. However, the experience of individual plant operators indicates that conditions have finally been settled sufficiently to say that under present field conditions whatever decrease in the total crude production is shown approximately the same percentage decline will be shown in the gasoline output. The reduction in the allowable in the East Texas Field for September of approximately 25 per cent caused a reduction in the gasoline production of approximately 33 per cent at individual plants. However, a portion of this reduction was caused by the inability to plan and correlate the operations of the wells and the plant rather than the loss in gas volume alone. It is believed that some of this decline in gasoline production when expressed as a percentage of previous production may be brought back and it is possible that a rather close relationship will be established.

STATUS OF NATURAL GASOLINE PLANTS IN EAST TEXAS FIELD

Company and location—	Gasoline capacity	Gas capacity	Status
Gladewater Gasoline Co., J. S. Crosby Sur., Gladewater	16,000	10,000,000	Operating
Humble Oil & Refining Co., Overton (London lease)	50,000	10,000,000	Operating
Humble Oil & Refining Co., Kilgore	25,000	5,000,000	Operating
Lisbon Gasoline Co., Rusk County, Joiner area	15,000	5,000,000	Operating
Gulf Production Co., 1 mile west of London	10,000	5,000,000	Operating
Gregg-Tex Gasoline Corp., Willow Springs	30,000	60,000,000	Operating
Excelsior Refining Co., Inc., Henderson	20,000	20,000,000	Operating
Harmony Gasoline Co., Willow Springs, Gregg County	25,000	30,000,000	Operating
Tall Pines Natural Gasoline Corp., London	.....	.....	Proposed
Tall Pines Natural Gasoline Corp., north part of field	.....	.....	Proposed
Hercules Gasoline Corp., Kilgore (Angus Spear farm)	7,000	25,000,000	Building
Laurence Gasoline Co., Willow Springs	1,500	1,500,000	Operating
Total	199,500	191,500,000	

PRODUCTION OF NATURAL GASOLINE AND CRUDE OIL IN EAST TEXAS THIS YEAR

Month—	Gasoline (gallons)	Crude (barrels)	Ratio of production (Bbls. crude per gallon of gasoline)
January	1,100,000	10,447,000	9.5
February	1,100,000	10,445,500	9.6
March	1,700,000	17,340,000	10 2
April	900,000	10,467,000	11.6
May	1,900,000	27,591,000	14 5
June	1,800,000	24,633,000	13.6
July	1,500,000	19,277,000	10.1
Total seven months	10,400,000	120,320,000	11.6

Erratic Operating Conditions

These operating problems had to be solved in the Oklahoma City Field also and became especially difficult when the governor of the state ordered sharp reductions in the output of the field. In the early stages of enforcing proration in the Oklahoma City Field a plant had to be prepared to take gas whenever the producer found it advisable to produce his allowable for the month. As a result, a part of the time there was excess gas coming to the plant and at other periods there was not enough gas to hold normal operating temperatures and pressures within the system.

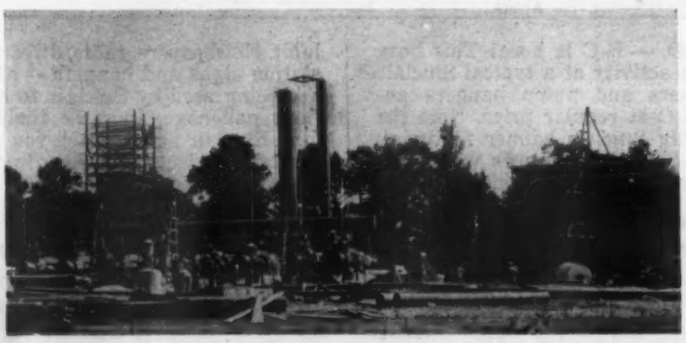
The problem in East Texas has been similar except that there is not as large a volume of gas coming from the individual wells nor is there as drastic changes made from week to week in the crude allowable. However, the same difficulty in holding up production at certain times and in processing all of the available gas at others has been experienced repeatedly in the past two months in East Texas.

Because of the strained economic conditions generally there has not been the free spending of money for equipment for plants to permit a wide change in operations to meet the changing field conditions. With natural gasoline prices up nearer to a normal level there will be a willingness to add the necessary equipment as the needs continue to show themselves. In addition to the tabluation below, which has been mentioned as showing the individual plant locations, capacities, etc., there is a comparison between the volume of natural gasoline produced in East Texas each month this year and also the volume of crude produced, the report of the Bureau of Mines being taken as a basis.

It will be seen that the May, June and July yield of natural gasoline comes close to 2,000,000 gallons in each case. In this time the production of crude oil dropped from 27,591,000 bbls. in May to 19,277,000 bbls. in July.

If the ratio between the barrels of crude oil produced each month and the gallons of gasoline produced may be of any significance, it will be seen that in May 14.5 bbls. of crude were produced for every gallon of gasoline recovered. In July this was reduced to 10.1 bbls. The constant decline since the peak month of May leads to the belief that the trend will continue until a substantially higher yield of gasoline is arrived at.

East Texas Gasoline Plant Under Construction



Construction picture of the Gregg-Tex Gasoline Corp.'s 10,000,000-foot gasoline plant in Gregg County in the East Texas field. Six twin-type Clarke engines are shown mounted on foundations

START PANHANDLE PLANT

The Bell Oil & Gas Co. has reconditioned and modernized its natural gasoline plant in Section 124, Block 4, I.&G. N. Survey, in Carson County, and expects to begin its operation this week. The modernized plant will produce between 4,000 end 5,000 gallons per day. It has been idle for many months and was formerly operated as one of the Raune and Sargent properties.

STABILIZER COMPLETED

The 30,000-gallon stabilizing unit under construction at the Myrtle, La., natural gasoline plant of the United Gas Corp. is nearing completion. Other changes have been made to modernize the plant and initial runs on the new equipment have been planned for about the middle of the month.

NEWS FOR SALES DEPARTMENTS

Direct Sale of Its Products Launched by Crown Central

HOUSTON, Tex., Oct. 9.—Crown Central Petroleum Corp. is launching a new policy of direct distribution of its products and is initiating this policy in the Houston district with a nucleus of 12 new statons. Construction of these stations has been started under the direction of T. J. O'Connell, engineer for the company.

Crown products have been retailed extensively throughout Houston and this territory, but in the past they have been handled under contract by exclusive distributors who have had chains of stations. The distribution at this time is by the Consolidated Oil Co. but the contract with this company expires in the near future, before which time the Crown-owned stations will have been completed.

Crown Central Petroleum Corp. owns and operates an 8,000-bbl. refinery on the Houston Ship Channel, just east of Houston. The company is controlled by the Blaustein interests of Baltimore, Md., which operates distribution facilities in Maryland and surrounding states.

The Pan American Refining Co., which has a 25,000-bbl. refinery under construction in Texas City, is said to have various sites for service stations under consideration in connection with reported plans for entering the retail market in this and other Gulf Coast cities. According to earlier and erroneous reports, Pan American, not the Crown, was the owner of the new stations now going up.

Cargo Fuel Oil Shipments From West Coast Started

LOS ANGELES, Calif., Oct. 7.—Cargo shipments of fuel oil for domestic consumption on the Atlantic Seaboard were started this week when the tankers D. G. Scofield and Los Angeles departed with fuel oil cargoes of 77,273 bbls. and 70,100 bbls., respectively. The transportation of approximately 15,000,000 bbls. of fuel oil from California to the Atlantic Coast will be started with the arrival in Los Angeles Harbor of the tanker William W. Wardin of the Standard Oil Co. of New Jersey. That vessel will be followed immediately by the William Rockefeller and others of the Jersey Standard. The greater part of the 15,000,000 bbls. of fuel oil bought by the Standard Oil Co. of New Jersey will be moved during 1934, as liftings in California during the remainder of the current year are not expected to exceed 2,500,000 bbls.

In contrast with the substantial shipments of California petroleum products to Atlantic and Gulf Coast ports, it is interesting to note that two cargoes of Texas gasoline are expected to be discharged on the Pacific Coast in the near future. The tanker Phoenix, with approximately 72,000 bbls. of gasoline, and the tanker Papoose, with about 65,000 bbls. of Texas gasoline, are reported to be en route to the Pacific Coast. The discharge of these cargoes is expected to precipitate a price cut in the Pacific Northwest and in the San Francisco Bay region, unless Secretary Ickes decides to regulate prices of crude and refined oil. Gasoline prices on the Pacific Coast have been fairly stable during the last month although there have been several minor flareups.

Marketing Group of Central States Plans to Have Committees in Each State

Following a meeting of the Central States Regional Committee for administration of the oil code held last week in Chicago, the marketing, refining and transportation groups met separately and discussed their respective problems. It was announced that the marketing division will have committees in each state. Headquarters for the divisions already have been established in Chicago. The regional headquarters and headquarters of the transportation division will be in Chicago also. The headquarters of the production division will be in Findlay, Ohio, and headquarters of the refining division in Ashland, Ky.

E. E. Kadlich, president of the Northwestern Petroleum Association, was made secretary of the Central States Regional Committee and he is to be in active charge of the Chicago headquarters.

At the opening of the regional committee meeting Edward G. Seubert, general chairman, said that the work ahead included efforts to put more men back to work and co-operative activities to solve problems in production, refining, transportation and marketing which have caused uneconomic operations.

"In order to achieve the best results, we must give and take as individuals," Mr. Seubert said. "We have a tremendous task, but we are already on the road toward success. We are not representatives of our respective companies, but appointtees of the Government, charged with the responsibility of doing what is best for the industry and for the economic welfare of the country. I trust that with patience and industry we will get results."

E. B. Reeser and B. J. Majewski attended as envoys of the code Planning and Co-ordinating Committee which carries primary responsibility in developing and administering the oil code. Both expressed the view that organization of the regional committee was an important step forward in gaining benefits from the oil code.

Gasoline Taxes Amount to $100,000,000 in 8 Months

WASHINGTON, D. C., Oct. 9.—A recent statement by Chairman Pat Harrison of the U. S. Senate Finance Committee, to the effect that increases in Federal revenue from other sources should make possible soon by presidential proclamation the elimination of Federal gasoline and other special additional taxes was followed by announcement of the Bureau of Internal Revenue of collection of Federal gasoline taxes amounting to $22,420,634 in August. This income brought total Federal gasoline tax collections for the first eight months of 1933 to a total of $100,309,272. The tax rate now is 1½ cents per gallon.

Following are Federal gasoline tax collections by months: January, 1 cent, $11,341,893; February, 1 cent, $8,515,013; March, 1 cent, $10,547,166; April, 1 cent, $7,982,100; May, 1 cent, $12,773,674; June, 1 cent, $10,929,739; July, 1½ cents, $15,799,053; August, 1½ cents, $22,420,634; total, $100,309,272.

Unit Oil or Gas Electric Engines Growing in Favor

CHICAGO, Oct. 9.—Flat prediction that within 10 years, or possibly less, unit oil or gas electric engines will replace steam on American railways is made by Fred W. Sargent, president of the Chicago & Northwestern Railroad. The road's engineers have been studying the possibilities of fixed-station electrification of its suburban service, but have rejected it and are favoring the general use of the unit engines. The road has about 40 such pieces of equipment now in use.

"The oil or gas electric unit type motive power is as flexible as that of the steam locomotive," said Mr. Sargent. "Tremendous progress is being made with development of internal combustion gas engines for railroad use in both Europe and this country. Even for long-haul service they are making good showings. They also have definite advantages over general electrification of a system, the latter requiring huge expenditures and being unable to match the flexibility of the unit type operation."

State Gasoline Monopoly Is Considered by Sweden

A report which will be presented to the Swedish Riksdag in Stockholm the coming winter by a special committee will contain proposals urging a state gasoline monopoly.

Establishment of such a monopoly would place Sweden among the limited number of countries having such monopolies. The other most important nation to introduce absolute state control of gasoline is Spain.

The Sewdish committee outlines three plans of control. The first would be purchase by the state terminal stations now operating; second, purchase of all physical equipment, and third, strict regulation of prices by the government.

The principal American companies affected would be subsidiaries of the Texas Co. and the Standard Oil Co. of New Jersey. The Soviet operates in Sweden under the name of the Nafta Syndicate, while British companies marketing in Sweden are the British Petroleum Co. and the Shell Oil Co.

Oil companies operating in Sweden have been losing money for some time, the committee notes, which is attributed almost entirely to the unusually sharp competition. Protests against a gasoline monopoly have already been made by automotive bodies and a bitter fight over the question is looked for.

WILLIAM H. LOBB PRESIDENT

HOUSTON, Tex., Oct. 9.—The Independent Service Station Association, Inc., formed to facilitate group wholesale purchases of petroleum products, has elected William H. Lobb as president to succeed Lee H. Ward. Other officers and directors elected are L. D. Smith, vice president; F. H. Moore, secretary; Ed C. Isaac, treasurer, and Sam Schafer, S. D. Anderson, M. P. Kotch, Ed S. Koteh, C. E. Dyer, O. S. Brown, H. E. Kelly, Lee H. Ward and W. R. Clark, directors.

WHITMAN SHREVEPORT AGENT

SHREVEPORT, La., Oct. 9.—E. J. Whitman, in the sales department of the Gulf Refining Co., in the Shreveport territory for the last eight years, has been appointed agent for the company in Shreveport.

Distribution Cost Said to Be Cut by Marketing Methods

WASHINGTON, D. C., Oct. 9.—Approving the recent warning of Oil Administrator Ickes against the public's purchase of "bootleg" gasoline, or gasoline on which the tax has been evaded, W. A. Smith, of Buffalo, N. Y., a director of the Individual Brand Petroleum Association, issued a statement here, emphasizing the difference between the below cost gasoline at which the administrator's warning was aimed, and the low cost gasoline distributed by dealers in his association.

"Our association strongly endorses the stand taken by Secretary Ickes against the consumption of gasoline sold below the cost of production and the efforts of "tax evaders and purchasers of bootleg products to destroy a stable industry," Mr. Smith said on behalf of the association.

"Our low price, averaging a difference of 2 cents per gallon, is made possible by a more efficient type of marketing than is feasible for most of the major companies, due to their high overhead. Our members in 26 states have cut distribution costs to the bone, and because of this, we are able to pass on to the public a real saving. But our prices, while below those of the major companies, are based on the cost of production, plus distribution charges, the payment of wages higher than those required under the NRA oil code, and a fair profit to the dealers. These factors definitely limit the saving we can pass on to the public."

Federal price fixing, the association contends, would wipe out the little retail dealer who is now handling low-cost, tax-paid gasoline.

Air Lines Big Buyers of Gasoline and Lubricants

How extensive a purchaser of petroleum products the air transport industry has become is illustrated by the placing of orders by United Air Lines for 8,000,000 gallons of gasoline and 330,000 gallons of lubricating oil for one year's subscription.

One of United's new three-mile-a-minute Boeing multimotored transports consumes 1,200 gallons of gasoline and 30 gallons of oil on its 20-hour coast-to-coast flight. A plane consumes 270 gallons of gasoline on the four and three-quarter hour flight from Chicago to New York and the Dallas-to-Chicago trip requires 350 gallons. The overnight trip from Seattle to San Diego, virtually from the Canadian border to the Mexican boundary, requires 410 gallons.

The gasoline consumption by scheduled air lines for the first half of this year was 12,500,000 gallons, and oil consumption 470,000 gallons.

FOURTH CARGO FOR DETROIT

MUSKEGON, Mich., Oct. 9.—The Allied Oil Co.'s tanker "Crudoil" cleared the Muskegon harbor Thursday, October 5, with a fourth cargo of petroleum products shipped from two local refineries to Detroit this season. The cargo included about 16,000 bbls. of fuel oil, the third shipment of its kind this season. One cargo of gas oil also has been shipped to Detroit. The Old Dutch and the Naph-Sol Refining companies have combined in water shipments from Muskegon this year.

NEWS FOR PETROLEUM REFINERS

Aid of Government Needed in Making Alcohol from Grain

CALGARY, Alberta, Oct. 9.—Prof. J. W. Shipley of the University of Alberta has made a report to the Calgary board of trade on the possibilities of producing industrial alcohol from wheat as a substitute for gasoline as well as for other industrial purposes. This project has been suggested in the Canadian west with a view to disposing of surplus grain crops. Professor Shipley's report says:

"Economically, I am quite sure the manufacture of absolute alcohol from grain would require government assistance. In Europe the manufacture of ethyl alcohol from agricultural products cannot compete with the use of gasoline as a fuel, due to the relatively high price of these products for food purposes. In Sweden, all ethyl alcohol is manufactured from waste sulphite pulp liquor and it is retailed at from 23 to 25 cents per gallon. Canada has an enormous quantity of waste sulphite liquor and, so far as I know, is not manufacturing alcohol from this source. In general, in Europe, wherever alcohol is used as a fuel competing with gasoline, it has government support in some form or other."

Doctor Shipley reports that grain alcohol alone is not a satisfactory fuel for engines designed primarily for the use of gasoline. It has a vapor pressure only one-quarter that of gasoline while the heat of vaporization is about three and one-fifth times that of gasoline. Thus it is difficult to start an engine using pure alcohol.

Efficiency of alcohol per gallon in producing power in an engine is only about 51 per cent of that of a gallon of gasoline. Motor engines in Canada are not equipped for handling air-alcohol mixtures, which is a further handicap.

On the other hand, a mixed fuel of gasoline and alcohol fires quickly and the rate of burning does not increase. Alcohol in gasoline also reduces the formation of carbon in the cylinders and fouling of spark plugs. Mixtures up to 20 per cent of alcohol can be used efficiently and to advantage in an ordinary gasoline engine without alteration in the carburetor. It also reduces the quantity of lubricating oil required.

Fluctuation in the price of grain is one of the greatest drawbacks. Thus a plant which could produce alcohol from grain at a profit when wheat was 40 cents a bushel might find itself losing money on the process when the price of wheat doubled. "Wheat at 40 or 50 cents a bushel is hardly a profitable crop to raise, and to compete with alcohol from other sources and with gasoline, of which commodity there is a surplus at the present time, the manufacture of alcohol from wheat to be used as a motor fuel is a very dubious process," states Doctor Shipley.

ADOPTS NRA CODE IN CANADA

CHATHAM, Ontario, Oct. 9.—James W. Johnson, vice president of the Northwest Stellarene Co., with plants in Shelby, Mont., and Coutts, Alberta, announces that the company has adopted the United States National Recovery Act working code in all its branches in Cada. A 36-hour week will be put into force with a 40 per cent increase in the payroll and a staff increase of 33⅓ per cent. Office branches in various cities of western Canada were put on a 40-hour week.

State Laws Superseded by Recovery Act Court Holds in Texas Ouster Suit

AUSTIN, Tex., Oct. 9.—Holding that the National Industrial Recovery Act and the President's code thereunder have superseded the antitrust laws of Texas as far as acts complained of in the State's $17,850,000 penalty and ouster suit against the Standard Oil Co. and others are concerned, Judge J. D. Moore of the Ninety-eighth District Court ordered the suit dismissed. In sustaining the general demurrer presented by defendants, he said:

"I adopt in their entirety the decisions and conclusions heretofore presented by counsel for the defendants. I am convinced they are correct and, in sustaining the general demurrer, I join with hosts of others in upholding the President."

The State will appeal the case on its pleadings, it was announced by Attorney General James V. Allred.

The decision is the first in any state court involving the Recovery Act.

The judge did not undertake to pass on the validity of the act, declaring this was not his province and noting that both sides had proclaimed the act valid.

"In deciding this case," he said, "I gather that those representing the defendants believe in the constitutionality of the National Industrial Recovery Act. I gather that counsel for the State believe likewise, and that the difference between them is on the question of whether the act is not intended for intrastate business but is confined alone to interstate business. No two men have the same vocabulary. All will differ on the meaning of the words. Whatever differences of opinion there may be, I take it we are all with Congress and the President, who may be called the father of his country at this time, in their efforts to meet a great emergency.

"Should we find it difficult to determine exactly as to whether intrastate transactions burden interstate commerce, we might look to the human side, on account of the emergency, and on the human side remark that the father has a right to go into the homes of his children to do those things which are for the public good."

Reviewing the case briefly, Judge Moore recalled that he had upheld the constitutionality of the state antitrust laws in passing on a former general demurrer and that in doing so he had held it not only was the privilege but the duty of the attorney general, if he believed the law had been violated, to bring his suit.

Inferentially, the court added in holding with the attorney general on that occasion, he had intimated that if the allegations in the State's petition were true the case should go to a jury despite the sanction of the Federal Trade Commission to the so-called code of ethics attacked in the petition. A new situation was now presented. It was clear that the so-called code approved by the Trade Commission and attacked in the suit was, in fact, intermingled and interwoven with that promulgated by the President under the Recovery Act.

If the general demurrer were not sustained, Judge Moore said, there would be many other questions to be decided before issues of fact were submitted to a jury. In view of the fact that the argument had been advanced that to sustain the demurrer would save time he thought it proper to say that the question of expediency did not enter into his decision; it is a judge's duty to try cases, he said. He had arrived at the decisions to sustain the demurrer with the single thought of doing his duty.

Oil Burner Industry's NRA Code Signed by President

NEW YORK, Oct. 9.—Setting up 11 regulations of fair practice, establishing a code authority and calling for a uniform system of cost accounting, the code of fair competition approved for the oil burner industry by the NRA outlaws the practice of selling or exchanging any product or service at a price level below actual cost, according to Morgan J. Hammers, president of the American Oil Burner Association, who has received copies of the oil burner code as signed by President Roosevelt.

The code sets up flexible working hours in line with practical seasonal requirements and stipulates that in manufacturing operations the maximum average work week for one year shall be 36 hours; in installation and service operations the maximum work week for the year is fixed at 38 hours. The minimum wage rate for both groups is fixed at not less than 45 cents an hour and for office and employes engaged in managerial executive capacities the minimum wage is fixed at not less than $15 a week.

EXCELSIOR COMPLETES TOWER

ALBANY, Tex., Oct. 9.—The Excelsior Petroleum Corp., which has filling stations in the West Texas area, has just completed a new tower at its 500-bbl. plant here. It recently installed its tenth company station.

Modern Methods in Mexico Increase Refinery Output

MEXICO CITY, Mexico, Oct. 7.—In announcing that the production of oil refineries in Mexico increased from 320,000 cubic meters in February to 407,000 in June, the petroleum department of the Ministry of National Economy attributes this greater output to the installation of modern machinery and extraction methods in these plants and the building of new refineries and the amplification of existing plants.

The department finds that all refineries are gauging their production strictly in accordance with the demand for such products, and reports that the output of crude and refined gasoline, especially the latter, has increased during recent weeks.

The report remarks that conditions on world petroleum markets have improved slightly and that this betterment has been reflected in the Mexican industry.

REFINING DIVISION MEETS

The first meeting of the refining division of Region No. 4, set up to carry out the new oil code in Texas, Kansas, Oklahoma, and New Mexico, was held last week in Fort Worth, Tex. The meeting was called to get the code as it affects refiners, into operation. Regional Director J. D. Collett of Fort Worth attended the meeting.

Briefs to Be Filed by Opposing Sides in East Texas Case

TYLER, Tex., Oct. 9.—Final hearing in the application of the Panama Refining Co. for an injunction against A. D. Ryan and others to restrain Federal agents from obtaining reports on the operation of refineries has been set for November 6 by Federal Judge Randolph Bryant. The case involves the validity of the National Recovery Act as applied to refinery operation in East Texas.

Judge Bryant denied the company's application for temporary restraining order because of a reasonable doubt of the unconstitutionality of the Recovery Act.

After the decision the court gave F. W. Fischer of counsel for the complainants an opportunity to take an appeal from the decision, but Mr. Fischer said he preferred that it to go to final hearing and it was agreed by counsel for the defendants that briefs be submitted by both sides.

The defendants in addition to Mr. Mr. Ryan, chief investigator of the division of investigation of the Department of the Interior, are J. Howard Marshall, Assistant United States Attorney General, and S. D. Bennett of Beaumont, United States District Attorney.

The Government's case was clearly charted by the court, who informed Charles Fahy, first assistant solicitor for the department, and Mr. Marshall that it was up to them to prove that the cases cited by the assistant attorney general were applicable to the present case.

Those decisions were in regard to the packing companies of Chicago and California and the Chicago grain pit and revolved around authority of the commerce clause giving Congress power over private business through activities of the Interstate Commerce Commission.

Mr. Fischer declared that that clause had wormholed state rights until there was no line of human endeavor safe from governmental encroachment and he expressed the opinion that the courts would have to limit its effect somewhere.

Plan Announced for Plant on Manchester Ship Canal

An oil refinery is to be erected at Ellesmere Port, on the Manchester Ship Canal, England, by Lobitos Oilfields, Ltd. A site, which will permit of the extension of the refinery should results warrant, has been acquired near the Stanlow Oil Dock, where the products of the company's Peruvian oil fields will be handled.

Although not the first installation of its kind at Ellesmere Port, the new refinery adds to the importance of the ship canal as an importing and distributing center for oil.

The oil traffic of the Manchester Ship Canal, which commenced at its opening in 1894, is today second only to that of the Port of London.

TWO REFINERIES UNDER WAY

GREAT BEND, Kans., Oct. 9.—Two refineries are under construction near here, one at Chase, in Rice County, and another near Russell, in Russell County. The one at Chase, where it is estimated 10,000 bbls. of oil are produced daily, will be of 1,000-bbl. capacity, and the other 250-bbl. The Alkot Petroleum Co. is building the plant at Chase, and O. H. Bonner & Son of Wichita the Russell plant.

Gasoline Market in Chicago Nervous; Refiners Maintain Optimistic Attitude

By SPECIAL CORRESPONDENT

CHICAGO, Oct. 9.—Weakness persisting in the tank car gasoline market was still unsettling the general oil price structure in this region as the week opened, but numerous refiners maintained an optimistic attitude on the ground that the decline had run through the greater portion of the recession that could be expected. However, with offerings reported from various sources in rather large quantities, the market continued nervous.

Refiners, carlot marketers and even jobbers in increasing numbers have been agitating for action by authorities arbitrarily limiting refinery runs at levels below those reported last week. Suggestions covering this point and the additional recommendation of further curtailing crude oil production rates in the large producing states have been wired to Washington by several concerns in the last few days, it is reported. This stand is taken by observers who fear lack of some such curb, assuming prices are not to be fixed for some time, may undo most of the general oil market improvement of September. Similar suggestions are said to have been made at refiners' and producers' meetings here and elsewhere in the last 10 days.

Threaten Shutdown

Small refiners are coming out with the statement that they cannot continue to meet higher crude prices and higher general operating costs under the NRA on the present declining gasoline market and they are threatening early shutdowns. Unofficial canvasses indicate that shutdowns of small plants in sections which are ordinarily points of origin for petroleum products moving into the Middle West territory have reached fairly important numbers in the last two weeks. It also is indicated that at other plants of limited capacity operating rates have been materially reduced. However, total volume of refinery operations is still conceded to be excessive. Investigation has disclosed that at least a few important plants serving this territory are continuing on approximately a capacity basis as they have done for some weeks past.

Another investigation conducted by a major company late last week revealed the existence of a larger quantity of gasoline offered for sale than generally had been understood to be the case, particularly in some sections of the Mid-Continent. It appears that most of the original gasoline that was on private siding or in transit in September has been taken up, notwithstanding the relatively small current buying rate of jobbers. However, with gasoline output still high, new supplies have been piled up in refiners' tanks at a higher rate than the current takings. While refiners' shipments have been large and generally satisfactory in themselves for this time of the year, material has continued to accumulate.

Third Grade Weakest

Third-grade gasoline is the product most widely and persistently offered. As the week opened it was being made available more freely below 4 cents a gallon, and some is said to have been offered in extreme distress circumstances virtually for buyers' bids. Jobbers are still cautious, however, and as they are receiving a good deal of gasoline on contract in a season of declining consumption, they show little friendliness toward buying, especially on a declining market which jobbers never have liked as a buying period.

Higher-octane value motor fuels are perhaps a little firmer than the low-number item, but they likewise have been affected. Possibility of an increasing spread between third-grade and regular grade in the tank car market has caused buyers to hold the low-grade material in relatively better consideration. The differential here remains for the present around three-quarters cent, but shows inclination to widen. Still, some regular gasoline is offered cheaply. It is understood that the benzoline business of around 100 cars (falling in the regular-grade bracket) went to a Mid-Continent refiner maintaining Chicago offices at a discount from ruling market levels.

High Gravities Fairly Firm

High gravity motor fuels have been making a better showing in the spot market than have their low-gravity companions. The approach of cool weather in the north, along with the fairly well-maintained prices for natural gasolines, is regarded as responsible. Further, most of the offerings have been of other grades. Frost of heavy extent has been reported for the last two weeks in some parts of the lake and northern Mississippi states. Jobbers are paying a little more attention to snappy action of their products and are asking for corresponding specifications in their orders.

Heating Oils

The weather is having some effect in burning oils also. Most distributors have prepared for an early cold snap by loading up their storage. Householders tried to take the same action before the last advance in tank wagon prices. The heating oils are a little dull and perhaps hardly so strong as they were 10 days ago, this condition doubtless being partly in sympathy with gasoline. Demand for kerosene was active, but has fallen off a little and offerings are more plentiful although the position of stocks would not suggest likelihood of any great weakness there.

Fuel Holding

Miscellaneous industrial consumers have been coming into the market for heavy fuels at a better rate, and this, with strength in crude, has served to keep these products fairly firm. The 24-26 product is strong and scarce. Cracking stock demand is still fairly good notwithstanding the reported intention of refiners to ease up on operations. This is also keeping industrial gas oil fairly firm, a condition that might not exist on general buying alone. Steel plant takings of fuel are only moderate, but railroads are reported good buyers. The zero fuels, of course, are taking care of themselves in good shape. Oils conforming well to heating oil standard numbers are not plentiful.

Lubricants and Waxes

Lubricating oils and waxes are holding their own, particularly waxes. It is generally felt here that wax may have some further runup in price soon. Business in lubs is not particularly heavy, but the market is strong.

Solvents Quiet

Solvents and naphthas are dull, with prices little changed. Feeling at large is that these items are still low priced, as they had little of the advance that gasoline enjoyed.

Retail Price Cuts

Tank wagon and service station price cutting is spreading, especially on third grade material. Regular retail prices are fairly well sustained, but sniping in various localities increases. This is regarded as a natural outgrowth of the recent weakening of the tank car market. However, the preponderance of the trade seems to be taking the code seriously, and enforcement activities are beginning on a widespread scale. It is hoped this will help to fortify the retail structure.

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Overhanging Salt on Texas, Louisiana Dome

(Continued from Page 16)

Texas and Lake Barre in Louisiana were domes of the overhang type. The date of discovery of salt overhang on these domes follows:

Barbers Hill, Texas	1930
High Island, Texas	1931
Allen, Texas	1931
Lake Barre, Louisiana	1931
Orchard, Texas	1927

Prolific wells have so far been developed beneath the overhang at High Island and Lake Barre but Allen and Orchard have not yet been successfully explored to determine whether or not worthwhile oil deposits lie beneath the overhangs. Unsuccessful attempts to discover overhangs have been made on several domes. Noteworthy examples are those at Sulphur, Louisiana, and Fannette Dome and Damon Mound in Texas.

Causes of Salt Overhangs

Three general theories of the cause of overhangs were reviewed by Judson, Murphy and Stamey in their description of the overhang at Barbers Hill[6]. The writers of that paper state first the theory of the outward movement of salt where in its upward flow it meets resistance of thick heavy cap rock on the top of the dome. The thick cap rocks present at Vinton, Hull, Barbers Hill, Allen and High Island suggest that on these domes the upward flow of salt was interrupted by heavy cap rock and turned outward thus aiding in producing the present overhangs.

The second theory stated in the paper mentioned above was quoted directly from Barton[7]. This theory predicates that under certain conditions, "(1) The main mass of the salt core tends to remain fixed in earth space and therefore at a constant depth below the surface if the surface remains at a constant level, and (2) that the base of the salt core builds downward by flowage of salt in under the base of the salt core." "The final form should be that of an inverted elongate tear drop."

It is believed that overhangs caused according to this theory would be deeper than the greatest depth to which the salt has been explored by drilling.

The third theory in the paper quoted was set fourth by Hanna[8]. This theory portrays the solution of the salt below the cap rock by both artesian waters and water pressed out of the shale by compaction. The forces producing this type of overhang would be at their maximum where the top of the dome is protected from the circulating waters by a thick cap rock, massive where in contact with the salt but yet porous in its outer surface permitting the upward movement of water through channels and crevices well away from the salt.

Barton[9] has recently proposed the following:

"(a) Two types of overhang presumably are present in the Gulf Coast.

Tilting of the Axis

"Tilting of the axis of the salt core of several domes is surmised by the writer from geologic and gravity data. For commercial reasons the data may not be presented at this time. They are scanty and not conclusive yet from them, the writer surmises that tilting of the vertical axis of the salt core must be present. On the dome on which the data are most conclusive, the overhang would seem to be on the side away from the Gulf and the gentle slope on the side toward the Gulf (I think Teas surmises the presence of tilting of the axis).

"The overhang at Barbers Hill goes essentially around the dome, and the upper part of the salt-cap core has somewhat the form of a mushroom.

"Overhang of the upper part of the salt-cap core could be produced in several ways.

"Dynamic overthrusting has slightly overturned many of the salt domes of old Rumania, but can not explain the overhang in the Gulf Coast.

"Tilting of the axis of the salt core could be produced as the effect of flowage of the prism of unconsolidated sediments toward the unsupported edge of the continental shelf. This flowage should take place partly as an effect of the static pressure of the upper sediments on the lower sediments and therefore, should be greater at moderate depth than at the surface. The salt core should move with the surrounding sediments and the upper part of the salt core should move less than the part at moderate depth."

Barton also suggests in a private communication the following possible causes:

"(b) The static weight of a massive anhydrite cap on the top of a static salt core might push down and thicken the upper part of the salt core. This explanation doubtfully could explain so much overhang as that at Barbers Hill.

"(c) Pseudo-overhang, caused by slabs of salt or salt plus cap being sheared off and sidetracked at the edge of the dome."

The overhangs occurring at Belle Isle and Anse la Butte apparently were caused by circulating waters. The overhangs on the six other domes where heavy cap rock is present are certainly caused in part by this action. In fact such solution in greater or lesser amounts must undoubtedly be going on in all the domes of Texas and Louisiana and tends to produce overhangs wherever the upper part of the salt is protected by a cap rock and the salt below it is exposed to the dissolving action of circulating waters.

FIGURE 2

Advance Detection of Overhangs

The methods so far developed that have been of aid in determining in advance whether or not a dome has overhanging salt, consists of geophysical or geological subsurface studies, or both. The methods employed vary with the information already obtained from wells drilled on or immediately adjacent to the dome. If adequate drilling information is absent geophysical methods making use principally of torsion balance or seismic surveys are employed.

Geophysical Methods

Torsion balance surveys are made which consist of lines radial to the center of the dome with closely spaced stations across the dome and extending outward from it several miles. Studies made by geophysicists indicate that the presence of an overhang of the Barbers Hill type and magnitude can be determined in advance by such surveys.

The seismic methods are divided into three classes:

(a) Refraction methods of shooting, using both short and very long shots across the domes, permit separate computations of the approximate diameter of the domes, both near the surface and also at considerable depth. This method allows the detection of an overhang only when the diameter of the upper part of a shallow dome greatly exceeds that existing at a greater depth. This method was first suggested by Rosaire[10] in 1929.

(b) A seimic reflection method for detection of an overhang was developed by the Geophysical Research Corp. and was described by Lester[11]. This consists of the determination of the position of a steeply dipping bed lying against the salt at considerable depth by reflections nearly perpendicular to the bed. By proper selection of shot points and detector stations this bed can be traced to a point approaching its limit against the salt beneath an overhang. The outer limit of the suspected overhang can then be determined either from well records or by seismic reflection methods, and from these data the presence and approximate magnitude of the overhang can be found.

(c) A method is described by McCollum and LaRue[12] in which detectors are lowered into a deep well adjacent to the salt. Shot points are used at the surface above the salt on both the opposite and adjacent flanks, and also near the well. This method permits the close delineation of the salt section adjacent to the well.

It is reliably reported that all of the torsion balance and seismic methods listed above have been used either to discover an overhang or further delineate one already known to exist.

Geologic Subsurface Studies

Interpretation of geologic data obtained from wells reaching the dome close to its outer edge and from deep wells immediately adjacent to the salt, is often of much aid in judging the probability of the presence of an overhang. These studies resolve themselves into three classes.

(a) A study of the vertical cross section of a salt dome where sufficient data from wells exist to give some clue to the probability of the existence of an overhang. The surface of some domes slope outward to a point where the dip increases so abruptly that deep wells slightly further out fail to encounter the salt. These domes are fair "prospects" for further work in searching for an overhang. When a considerable projection of overhanging cap rock extending outward from a dome is found by drilling, the presence of a salt overhang also is strongly suggested.

(b) A study of dips of sedimentary beds as determined from cores and cross sections from wells near a dome is of aid in estimating the comparative distance at varying depths of a well from the salt mass. The principle involved is that dips around salt domes generally become steeper as the salt is approached. Accordingly, steep dips at shallow depths followed by gently dipping beds at greater depths are suggestive of an overhang.

(c) The amount and character of secondary mineralization of the adjacent sedimentary beds give a slight clue to the relative distance at different depths of a well from the dome, since beds often contain higher mineralization when close to the dome than at greater distance from it. Studies of such mineralization are helpful in estimating the extent of an overhang, but must be used with caution since the amount of mineralization is also affected by other factors including radial faults commonly present on the flanks of salt domes.

Physiographic Studies

Topographic features such as a circumferential ridge lying directly above or just inside the position of the outer edge of the salt mass may in rare instances suggest the presence of a salt overhang. Barton[13] in 1930 called attention to the ridges of this type being present at Barbers Hill and Vinton. Topographic maps of these two domes are shown in Figures 9 and 5. It is of interest to note that a circumferential ridge occurs at Barbers Hill on the flanks where the salt overhang is shallow, but is missing on the flank where the overhang is comparatively deep. Anse la Butte also has a central depression surrounded by a low ridge. The remaining eight domes listed as having overhangs do not have circumferential ridges suggestive of an overhang.

Physiographic features are in general so affected by other forces that the presence or absence of an overhang can not be determined from topography alone. Physiography can be made use of as a suggestion only in judging the presence of an overhang.

(To Be Continued)

What'll They Blame the Women Folks for Next?

The story of a sweet-smelling deposit of petroleum is the subject of a tale in Burma more than a thousand years old. King Alsungsithu was traveling through his kingdoms with his seven wives on his magic raft. At one point the wives went ashore and finding sweet-smelling earth anointed themselves and delayed so long that they forgot the hour appointed for their return.

The angered king issued the decree: "Let the queens who love scented earth more than me, their lord, be put to death."

The doomed ones replied, "From too much love of this earth we now must die. Let is lose its fragrance and become an overflowing stream of foul-smelling oil, and let those who collect it pay us honor as their protecting deities."

They were executed and became nats, or guardian spirits, and belief in them still persists among workers in the Burmese oil fields.

[6]A.A.P.G. Bulletin, Vol. 16, No. 5, May, 1932, pages 469-82.

[7]Private communication of Dr. Donald C. Barton.

[8]Marcus A. Hanna, "Secondary Salt Dome Materials of the Coastal Plain of Texas and Louisiana." Bull. Amer. Assoc. Petrol. Geol., Vol 14, No. 11, November, 1930, pp 1,469-75.

[9]D. C. Barton, Mechanics of Formation of Salt Domes with Special Reference to Gulf Coast Salt Domes of Texas and Louisiana, Bull. Amer. Pet. Geol., September, 1933.

[10]C. G. Rosaire, oral communication.

[11]Vol. 1, Society Petroleum Geophysicists, pp 19.

[12]Burton, McCollum and Wilton W. LaRue, "Utilization of Existing Wells in Seismograph Work." Bull. A.A.P.G., Vol. 15, No. 12, December, 1931, pp 1,409-17.

[13]Discussion by Donald C. Barton, Bull. Amer. Assoc. Petrol. Geol., Vol. 14, No. 6, June, 1930, p 741.

Report of Bureau of Mines for August Shows Increase in Crude Oil Output

WASHINGTON, D. C., Oct. 9. — According to reports received by the Bureau of Mines, Department of Commerce, available today, the production of crude petroleum in the United States during August totaled 85,239,000 bbls. This represents a daily average of 2,750,000 bbls. which is 28,000 bbls. above the daily average in July but is 12,000 bbls. below the high mark of June. Except for Michigan, where production was 50 per cent above July, no state showed a material change in output in August. Activities at Huntington Beach were instrumental in raising the daily average output of California to just above the 500,000-bbl. mark. Texas showed a small decrease (from 1,213,000 bbls. daily in July to 1,210,000 bbls. daily in August) as increases in the coastal fields of Conroe and Barbers Hill did not compensate for a decline of 19,000 bbls. in the daily average output of the East Texas Field.

Production in the Oklahoma City Field was well sustained in August but fell slightly below the record figure of the previous month. Seminole showed a small increase but the older settled fields of the state showed a substantial gain in output, with the result that the daily average output of Oklahoma passed the 600,000-bbl. mark. Production in Kansas, the fourth ranking state, showed a small decrease.

Daily average crude runs in August was 2,553,000 bbls. This represents a decline of 12,000 bbls. from the previous month but is 18 per cent above a year ago.

Stocks of crude petroleum continued to increase, totaling 356,434,000 bbls. August 31, a gain of 5,540,000 bbls. over the total on hand August 1.

The output of motor fuel in August totaled 37,137,000 bbls., a daily average of 1,198,000 bbls. These figures represent a slight decrease from the previous month.

The indicated domestic demand for motor fuel in August was 37,426,000 bbls., a daily average of 1,207,000 bbls. These data represent substantial increases over the previous month and over August a year ago. Exports of motor fuel, which had been increasing rapidly, fell to 1,961,000 bbls. from 3,303,000 bbls. in July. Stocks of motor fuel declined 2,249,000 bbls. during the month and totaled 51,814,000 bbls. on August 31. This decrease, while below the average for August, exceeded the withdrawal in July.

Interesting developments for the minor products were increases in the demand for kerosene and wax, the increased movement of wax being instrumental in reducing stocks to the lowest point in more than five years.

According to the Bureau of Labor statistics, the price index for petroleum products during August, was 40.9 compared with 41.3 in July, and 49.8 in August, 1932 (1926 index figure, 100).

The refinery data of this report were compiled from refineries with an aggregate daily recorded crude oil capacity of 3,478,210 bbls. These refineries operated during August at 73 per cent of their capacity, given above, compared with a ratio of 73 per cent in July.

FLASHING UNIT TO BE ADDED

Construction work has been started on the new 1,000-bbl. vacuum flash unit at the Ardmore, Okla., refinery of Wirt Franklin Petroleum Corp. Plans call for completion of the unit about December 1. The design and construction work is being handled under a contract with Petroleum Engineering, Inc., associated with the Arthur G. McKee Co.

Oppose Marginal Well Increase in East Texas

FORT WORTH, Tex., Oct. 9. — The East Texas Oil Land Owners Association, Sam W. Ross of Kilgore, president, has gone on record as opposing the marginal oil well bill pending in the Texas legislature. The bill was fostered by operators in the field who have pumping wells, and submitted by Senator Will Pace of Tyler.

The present marginal well allowance in East Texas is 20 bbls.; the Pace bill would increase marginal well allowance to 36 bbls. per day on the basis that marginal wells producing from 3,600 feet should be granted such an allowable.

The bill in its entirety would not permit the Railroad Commission to reduce the production of oil wells below the following limits: 0 to 2,000 feet, 10 bbls.; 2,000 to 3,000 feet, 20 bbls.; 3,000 to 4,000 feet, 30 bbls.; 4,000 to 5,000 feet, 35 bbls.; 5,000 to 6,000 feet, 40 bbls.

It is doubtful whether the bill can be acted upon during the present special session. Operators with pumping wells have argued that they cannot produce their marginal wells except at a loss under the present daily allowance for these wells, and that an increase is necessary if they are to continue to produce them.

CANADIAN CONSUMPTION DROPS

OTTAWA, Ontario, Oct. 9.—Figures compiled by the transportation branch of the Dominion Bureau of Statistics show that the consumption of gasoline in Canada in June, 1933, amounted to 48,802,000 gallons as compared with 42,190,000 gallons in May, and 51,253,000 gallons in June, 1932. For the six-month period ending June, 1933, the total gasoline consumption for all Canada was 198,508,000 gallons, as against 213,420,000 gallons in the same period last year.

Crude Oil Prices

(Continued from Page 23)

Lance Creek (Dec. 16, 1932)	.92
Poison Spider (Mar. 5, 1931)	.70
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Jan. 18, 1929)	.53
Lost Soldier (Sept. 30, 1933)	.80
Hamilton Dome (Dec. 16, 1932)	.25
Torchlight (Sept. 29, 1933)	1.10
Greybull (Sept. 29, 1933)	1.10
Pondera	1.15
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.70
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Sept. 29, 1933)	.70

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Standolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark (all grades)	$.70
Urania, La. (Oct. 3, 1933)	.75
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urania posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective October 4, 1933)

Bradford, Pa.	$2.41
Allegany, N. Y.	2.45

SOUTH PENN OIL CO.
(Effective October 4, 1933)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.45
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.12
Penna Grade Oil in Eureka Pipe Line Lines	2.07
Penna Grade Oil in Buckeye Pipe Line Lines	1.93
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.33

PENNZOIL CO.
(Effective October 4, 1933)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	$2.37
Group B — Includes Titusville district.	2.36
Group C — Includes Turkey and Tidioute districts.	2.35
Group D — Includes Bear Creek and Porkey districts.	2.34
Group E — Includes Edeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jamieson, Kennerdell, Emlenton, Tiona, Lacy and Kinsua districts. Price depends on length of pipe line haul to plant at Oil City.	2.33

PURE OIL CO.
(Effective October 4, 1933)

Cabin Creek, W. Va.	$2.17
Bradford Hollow, W. Va.	2.17
Kelly Creek, W. Va.	2.17

Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)

Lima	$1.30
Illinois	1.23
Princeton, Ind.	1.23
Plymouth	Shut in
Western Kentucky	1.18
Midland, Mich. (Sept. 30, 1933)	1.03
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.23
Hart County, Ky. (Oct. 1, 1933)	1.18

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Hart County, Kentucky, crude purchased by Stoll Refining Co. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs*	2.17
Turner Valley (September 11, 1933):†	
Clear naphtha	$2.50
Discolored naphtha	2.20
Crude oil, 50 gravity	2.03
Crude oil, 45 to 49.9	2 26
Crude oil, 40 to 44.9	1.01

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$.4664

*F.o.b. ship, based on August transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	...	$.65	$.65	$.65	$.65	...	$.65	$.67	$.67	$.67	$.65
15-15.9	.65	.65	.69	.69	.66	.69	...	.66	.65	.65	.65	...	.65	...	...	...	.65
16-16.9	.66	.65	.72	.73	.69	.73	...	.69	.67	.68	.65	...	.65	...	...	...	.65
17-17.9	.69	.65	.75	.76	.73	.76	...	.72	.70	.71	.65	...	.68	...	...	...	.68
18-18.9	.72	.65	.78	.80	.76	.79	...	.75	.74	.74	.65	...	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	...	.78	.78	.78	.65	...	.74	.64	.65	.62	.74
20-20.9	.78	.68	.82	.87	.83	.85	...	.81	.82	.81	.66	...	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	...	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	...	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.85	.89	.93	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	...	1.00	1.01	.90	.95	1.00	...	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.92	1.01	...	1.04	1.04	.94	.98	1.04	...	.89	.90	.96	.89	.88	...	.96
27-27.9	1.00	.98	1.04	...	...	1.07	.97	...	1.08	...	...	.94	.99	.93	.91	...	.99
28-28.9	1.03	1.02	1.07	...	...	1.10	1.01	...	1.13	...	...	.98	1.02	.97	.94	...	1.02
29-29.9	1.06	1.05	1.09	...	...	...	1.04	...	1.15	...	...	1.01	1.05	1.01	.97	...	1.05
30-30.9	1.09	1.10	1.12	...	...	...	1.08	...	...	...	...	1.05	1.09	1.05	1.00	...	1.09
31-31.9	...	...	...	...	...	...	1 12	...	...	...	...	1.08	1.12	1.09	...	...	1 12
32-32.9	...	...	...	...	...	...	1.15	...	...	...	...	1.12	1.15	1.13	...	...	1.15
33-33.9	...	...	...	...	...	...	...	...	...	...	...	1.16	1.18	1.17	...	...	1.1-
34-34.9	...	...	...	...	...	...	...	...	...	...	...	1.19	1.21	...	...	...	1.21
35-35.9	...	...	...	...	...	...	...	...	...	...	...	1.23	...	...	...	...	...
36-36.9	...	...	...	...	...	...	...	...	...	...	...	1.26	...	...	...	...	...
37-37.9	...	...	...	...	...	...	...	...	...	...	...	1.30	...	...	...	...	...
38-38.9	...	...	...	...	...	...	...	...	...	...	...	1.34	...	...	...	...	...

Additional Standard Oil Quotations

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.
Newhall—14 degrees and over, 57 cents.
McKittrick and Kern River—14 degrees and over, 57 cents.
Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.
Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over $1.11.

The Texas Co. posted in Shiel Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same prices as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over, Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills, and Coalinga.

RIDGID WRENCHES
On the Great Lakes Pipe Line

ON all of the 39 stations of the Great Lakes Pipe Line, RIDGID Pipe Wrenches are standard equipment. The set at each station consists of 3 Wrenches: one 36-inch, one 18-inch and one 12-inch.

The picture shows the Chief Engineer of the Copan (Okla.) booster station using a RIDGID 36-inch wrench. This station is one of the 13 equipped with the new Rannett Pump.

Choice of RIDGIDs for these stations is further evidence of their earned reputation for rugged strength and easy workability. Housings are guaranteed unbreakable. Jaws can't be locked on a pipe and they won't slip. Full floating hook jaw has a handy pipe scale, heel jaw is renewable, adjusting nut turns easily in open housing.

There are also RIDGID Threaders, Cutters and Vises, the first two of which are illustrated here. Ask your Supply Store.

THE RIDGE TOOL CO.
Elyria, Ohio, U. S. A.

RIDGID
PIPE TOOLS

Always Renew
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Promptly

The OIL and GAS JOURNAL

Late Fields

EAST TEXAS

FORT WORTH, Tex., Oct. 10.—Shell Petroleum Corp. and others' No. 1 Beggs in Leon County cored hard thin streaks of sand in shale from 5,606-22 feet and sand with faint trace of oil from 5,618-19 feet, probably lower Eagleford, corresponding to sand streaks in former test on this block.

OKLAHOMA

The two producing wells in the Crescent Pool in Logan County, Oklahoma, both owned by the Gypsy Oil Co. and Carter Oil Co. have not been drilled into the Wilcox sand. They were only cored in and it is from the 6-inch core holes that the two wells are producing. No. 1 Miller, in Section 28-17-4w, is a 5,700-bbl. well and No. 1 Walker, in Section 33, is a 2,000-bbl. well. It is believed that if they had been drilled in in the regular way they would have produced more on their initial test. However, it is unlikely that anything will be done to them as the wells are permitted to flow only a limited production because of the curtailment of flush fields.

The Mid-Continent Petroleum Corp.'s No. 1, C SE SE NE Section 3-11-11, Okfuskee County, has 2,800 feet of oil in the hole from Wilcox sand at 3,719-21 feet and is shut down for tankage.

Turman Oil Co. and others' No. 1, C SE SE NW Section 33-7-4, South St. Louis area, Pottawatomie County, flowed 1,056 bbls. in 24 hours from dolomite at 4,200-03 feet. There is no water.

Amerada Petroleum Corp.'s No. 1, C NW NW SW Section 33-7-4, which came in in June making 3,740 bbls. in 24 hours from 4,078-98 feet and 4,135-36 feet, was deepened to pay at 4,188-96 feet, and made 679 bbls. of oil and 95 bbls. of water in 15 hours.

Jones and others' No. 1, C NW NE NW Section 2-6-4, South St. Louis area, got Simpson dense at 4,130-45 feet, and the well made 837 bbls. in 18 hours on the first day, and 666 bbls. in 23 hours on the second day.

KANSAS

The Corporation Commission of Kansas was expected to soon issue an order covering the 116,000-bbl. allowable production in October.

Under the proposed new order, wells in the pool where the daily average production is under 5 bbls. will not be restricted in their production. Those in pools where the wells have an average production of between 5 and 10 bbls. will be allowed to take 95 per cent of their potential. The scale is graduated up to the point where wells in pools with a well average of 200 bbls. a day will be held to 50 per cent of their potential production.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Oct. 9.—Al Buchanan's No. 1 Duval Ranch Co., Survey 206, north of the North Government Wells Field 4 miles, in Duval County, at 1,475-83 feet on drill stem test filled 700 feet in oil in 15 minutes from the Cole sand. It is setting casing and is the best oil showing ever had in the Cole sand.

GULF COAST

HOUSTON, Tex., Oct. 10.—Pure Oil Co.'s No. 1 Stewart, Morris and Cummings Survey, Section 25, Louise area, Wharton County, on test produced at the rate of 1,600 bbls. of fluid a day, 400 bbls. of oil and 1,200 bbls. of water. The oil was found in sand from 5,963-71 feet, plugged from total depth of 8,067 feet. Preparations are being made to pull screen and liner, plug back 500 feet and sidetrack back to the sand. This well proves the existence of oil in the Louise area.

In the Greta Pool, Refugio County, Dash Production Co.'s No. 3-D O'Brien made 700 bbls. of oil a day through two one-quarter inch chokes from the sand at a total depth of 4,391 feet. Hoboots Oil Corp.'s No. 1-C O'Brien made 310 bbls. a day through two one-quarter inch chokes from sand at a total depth of 4,409 feet. Greta Oil Corp.'s No. 4-B O'Brien made 28 bbls. an hour through two one-quarter inch chokes from the sand at a total depth of 4,401 feet. The Texas Gulf Producing Co.'s No. 1 J. M. O'Brien made 300 bbls. of oil a day through one-quarter and three-sixteenths inch chokes from the sand at a total depth of 4,395 feet.

Storage on Gulf Coast Declines as of Sept. 1

HOUSTON, Tex., Oct. 9.—The report on storage of crude oil in the Gulf Coast area as of September 1, 1933, shows a decline of 346,463 bbls. from the previous month. This decline is believed to be due to curtailed production. The total storage in the Gulf Coast and Southwest Texas and Louisiana on September 1 was reported as 20,544,666 bbls. The report follows:

TERMINALS AND REFINERIES	
Almeda	138,000
Baytown	2,052,078
East Houston	1,633,100
Houston works	323,687
Lynchburg	46,000
Norsworthy	531,750
Texas City	158,000
Webster	1,016,000
Miscellaneous	4,363,295
Total	10,256,910

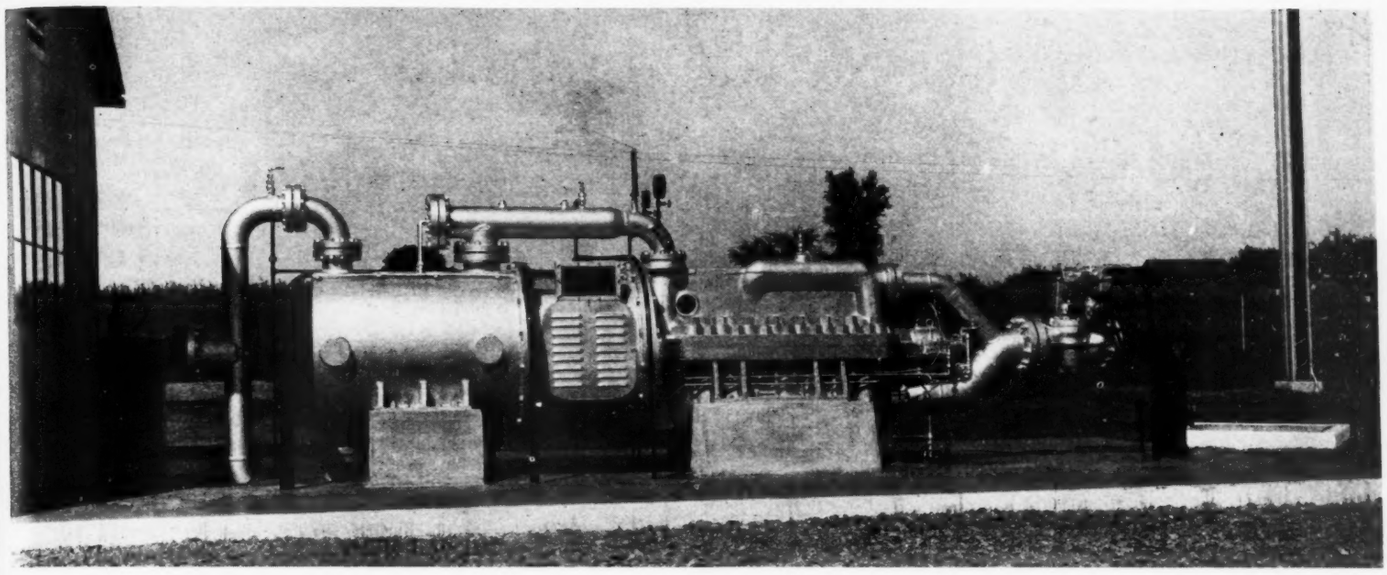
GULF COAST FIELDS	
Texas Fields	
Barbers Hill	92,000
Conroe	137,385
Big Creek	29,885
Damon Mound	13,550
Greta	45,667
Goose Creek	65,000
Hull	331,400
Humble	1,065,797
Markham	11,039
Pierce Junction	39,000
Refugio	134,083
Raccoon Bend	41,544
Saratoga	15,700
Sour Lake	1,727,397
Sugarland	29,832
West Columbia	794,432
Total	4,573,711
Louisiana Fields	
Bayou Choctaw	1,500
Bayou Blue	1,540
Black Bayou	11,345
Cameron Meadows	2,301
Edgerly	7,212
Gueydan	3,039
Hackberry	5,423
Iowa	20,457
Jennings	43,859
Lake Barre	7,528
Lake Pelto	384
Leesville	1,965
Lockport	543,335
Port Barre	8,155
Sorrento	4,800
Starks	10,805
Vinton	259,480
Welsh	17,000
White Castle	5,600
Caillou Island	1,260
Total	960,710
Grand total Gulf Coast	15,791,331
Southwest Texas Fields	
Chapman	199,345
Darst Creek	193,624
Laredo	1,916,658
Lytton Springs	7,060
Pettus-Tuletta	19,085
Salt Flat	2,381,563
Yoast	1,000
Hilbig	36,000
Total	4,753,335
Grand total of all areas	20,544,666

GASOLINE COMPANY SEIZED

MINNEAPOLIS, Minn., Oct. 9.—In a campaign to stop gasoline tax evasions in Minnesota, the state oil inspection department has seized a gasoline company under receivership action in order to collect $15,500 in taxes, which the department alleges the company has not paid. Assets of the company will be liquidated. Thousands of dollars in taxes have been evaded by gasoline bootleggers, according to state officials.

SCOUTS' BOOK READY

The revised edition of the current year book of the National Scouts Association is ready for distribution. These books cover the data of each field and give an interesting history of the important events in the States of Texas, Louisiana and New Mexico. They can be obtained by writing to C. O. Falk, secretary and treasurer of the National Oil Scouts Association, 2015 Smith Young Tower Building, San Antonio, Texas.



The Rannett electrically driven centrifugal pumping unit with motor cooled by gasoline

New Pumping Unit of Radical Design Revolutionizes Oil Pipe Line Practice

By ANDREW M. ROWLEY

Motorists know that when they drive into a filling station to have the tank filled and forget to shut off the ignition the attendant usually says: "Please turn off the engine." There is a fear of having a motor running near gasoline.

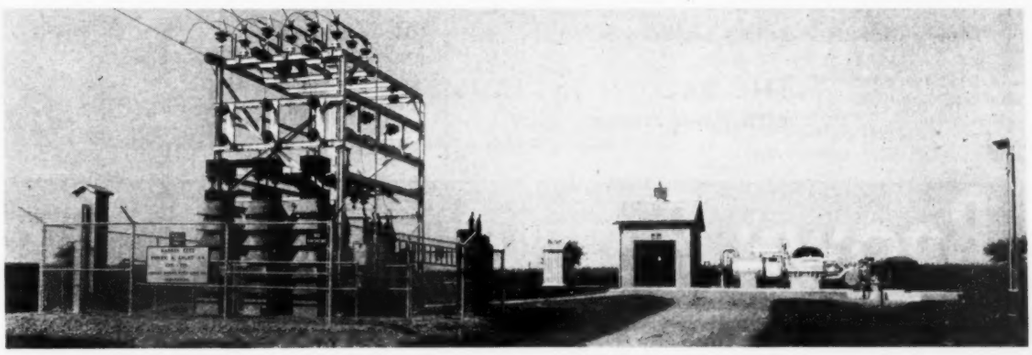
Yet the Rannett electrically driven centrifugal pipe line pumping unit, in operation at 13 stations on the Great Lakes pipe line, has either a 700 or 400 h.p. electric motor for power and this motor is cooled by the circulation of gasoline around the motor.

This is just one of the many unique features of this pipe line pumping unit which has attracted widespread attention from the entire pipe line industry. When the first Rannett unit was installed on this system just about a year ago, it was regarded as a revolutionary practice in pipe line operation. Designed for outdoor operation, without housing of any kind, all movable parts had to be protected from the elements and from dust and dirt. It was quite a problem but the fact there are now 13 of these units operating on this one pipe line with a very high rate of efficiency and no change whatever made in the original design proves conclusively all problems were solved in a most successful manner by the inventors.

Economical pipe line pumping has been achieved by the Rannett pumping unit. The whole unit, only 19 feet long and weighing but 26,000 pounds, can be hauled to a station site on an automobile truck and installed and placed in operation on a line within two hours after arrival at the site. Only one-fourth acre of ground is required for all the station equipment with this pumping unit as compared to 20 acres for the usual type of pumping equipment. Where one type of pipe line station equipment including engines, pumps, cooling system, auxiliary lighting system and auxiliary power equipment, steam heating and the water system will weigh 600 tons, all equipment for a Rannett equipped pumping station of the same capacity will weigh only 15 tons.

Should conditions change and the pipe line station be no longer required, as is the case quite often in the pipe line industry, every piece of equipment on a Rannett equipped station can be salvaged except 15 yards of concrete on which the unit rests. And all this equipment, including the unit itself, can be loaded on an automobile truck and moved easily and quickly to any other point where its services are desired. In fact the Great Lakes Pipe Line Co. has a Rannett unit as a standby and this standby unit can be moved to any point on the 1,450 or 1,500-mile line and placed in operation within 48 hours. In other words, this unit is much the same as a spare tire on an automobile. One unit is sufficient and eliminates the necessity of having standby units installed at each station.

Such a unit has been found of especial value in designing a pipe line and in locating stations. Quite often engineers decide the proper site for a station to keep the line capacity at a predetermined figure



A Rannett pumping unit equipped station on the Great Lakes pipe line

Motor and Pump Bearing Temperatures Accurately Checked at all of the 13 Great Lakes Pipe Line Stations

Accurate Temperature Measurement might well be the watchword for the fifteen hundred mile pipe line of the Great Lakes Company. At each of the 13 stations a Brown Potentiometer checks the temperature of all bearings on the motors and pumps. A click of the switch—a glance at the clear open dial—and the operators have an accurate guide to proper lubrication.

In the Oil Industry, whether for pipe lines, in production or refining, Brown Potentiometers have earned the preference of exacting engineers because of their remarkable accuracy of one-fifth of 1% of the range. This accuracy is maintained by these Brown Features:

1. 40" Helical slide wire with 1900 convolutions. Each slide wire is uniform within one-tenth of 1%.
2. Long 40" slide wire permits robust wire (.020" dia.) to be used as a winding unaffected by wear after long service.
3. Because of the large diameter wire used on the slide wire each convolution can be selected accurately, each convolution is equivalent to only .006" (6-1000ths of 1") on the chart.
4. Air cell with internal temperature compensator available instead of dry batteries. Standardizing of potentiometer only once a month—water renewed once every three months. Life 2½ years.

Many other features are fully explained in detail in Catalog 1101. Write for it.

Get this 48 page Catalog No. 1101 describing over fifty important features of the Brown Potentiometer Pyrometer. Copy sent promptly on request.

THE BROWN INSTRUMENT COMPANY
4488 Wayne Avenue Philadelphia, Pa.
Branches in 22 principal Cities

BROWN POTENTIOMETER PYROMETER

Brings Laboratory Accuracy to Industry

should be a certain distance from another station. However, that location may be inaccessible for delivery of fuel to the pumping unit or to water or other supplies. The scientific location of the station site might place it on the bank of a river or some other point where it would be impossible to locate the station equipped with large, heavy pumping equipment and accessories and needing 20 acres of ground for the station, tankage, etc.

But as all that is necessary for a Rannett equipped station is one-fourth acre of ground and most any kind of road which an automobile can travel (the unit can be split into two or three sections for hauling, if necessary) one of these stations can be located at any point decided by engineers as the best and where the unit would do the most good and not interfere in any way with the capacity of the pipe line. Power is transmitted to the unit through wires strung by the public utility or power company supplying current, doing away with the necessity of hauling fuel and water as is required by other types of engines.

During the past year a careful check has been kept at every Rannett equipped station on the Great Lakes pipe line on electric current outages and these have been so small that they have been recorded in seconds such as "There was a 15 seconds outage at station number so and so during the year 1932." Electricity has been found to be exceptionally dependable in the operation of these pumping units on this line, due to the active co-operation of the different power companies supplying the current.

The design of the Rannett pumping unit is such that it can be incorporated into a series operated station which will give it flexibility.

The basic thoughts behind the design of the fluid-cooled Rannet pump are:

1. To obtain a complete electric pumping unit which would be weather and dirt proof and which could be used without any type of cover or protection.
2. To obtain a type of unit which was of such design that it required practically no foundations and which would be supported by the line itself if necessary.
3. To obtain a unit type electric pump which required no field assembly and one which could be assembled in the manufacturing plant and moved to final location ready for operation immediately.
4. To develop a type of motor which could be cooled by fluid being pumped, irrespective of what this might be, instead of cooling by air circulation. Also to develop a large size motor for cross-line starting to eliminate expensive electrical switch gear.

Cooling the Electric Motor

At the time the Rannett unit was designed there was practically no information or data available concerning the external cooling of large size electric motors by fluids and running them without circulation through their rotors. The patentees were of the opinion that temperatures below the critical for electrical insulation would be maintained if the specific heat and volume requirements of the cooling fluid were satisfactory. In order to minimize the amount of equipment and connections required it was decided to use the fluid being pumped for the cooling medium.

The fluid for cooling a Rannett unit when used as a booster in a continuous line may either cool the motor before passing through the pump or after. The units built to date have all had the motor cooling on the suction side of the pump. Since the cooling fluid passes through a double jacket around the motor it simplifies construction and reduces costs to have the working pressures through the jacket as low as possible. The normal pressures in the cooling jackets installed on the Great Lakes pipe line is approximately 20 pounds per square inch. The jacket is, however, designed to operate against a pressure of 150 pounds with a good factor of safety as a pressure of this magnitude could be reached when the booster station was idle. This pressure would be the line pressure when pumping between stations at each side of the Rannett unit in case all valves were not absolutely tight, which case must be guarded against since the first units were installed for pumping gasoline.

The original design of the motor housing was a double walled steel casting, this, however, was abandoned for welded chrome nickel steel plates to insure against possible porosity and the cost of intricate patterns, also to facilitate speed in the development and production of the first unit.

By removing heat from the outside shell of the motor less clearance is required between the rotor and stator resulting in a higher power factor and saving in electrical energy and also in increased efficiency.

The general shape of the Rannett unit from end to end is that of a cylindrical beam, offering the greatest possible resistance towards deflection. The unit is so designed that it can be laid down, connected up and run without any foundations as there are no external forces acting upon it.

The pump end of the unit was designed for high efficiency and accessibility. It is directly connected to the motor end through a highly efficient gear type flexible coupling. The coupling serves principally for lateral motion of the shaft as the alignment radially is perfect. A spacer section separates the motor and pump shell and provides a housing for the coupling. The spacer section permits dissembling the unit in three sections. This was done primarily for export shipment and transportation where crating is required. Units installed in the United States have all been shipped completely assembled and ready to run very shortly after their arrival upon the station site.

The installation of the pumps at the station site is a very simple matter as they are shipped completely assembled, ready for operation. Their size is such that they can be hauled by truck to the station site, the truck backed up to the small size concrete block used as a base, the pump skidded over the block on timbers and then lowered with block and tackle from an overhead A-frame to the foundation bolds, this operation requiring approximately two hours' time. Then, after connecting up the electrical circuit, the unit is ready for operation.

The design of the Rannett unit is such that the pump is well adapted to the unwatering of mines where air circulation for cooling standard type motors is not available, for crude oil pipe lines, for water systems and for use in connection with pumping hot oil where a secondary source of cooling a fluid may be used in place of the fluid being pumped to keep the motor down to normal operating temperatures.

Unit for Lease Tanks

There is at present being designed a small type unit of 3 to 5 horsepower which may be used for pumping out lease tanks. The unit will be equipped with a coupling at each end and will be made to operate from either 110 or 220-volt circuit. It will be light enough for an operator to carry in the rear of a light pickup car. The operator can carry the unit to the tank in question, snap it into the line with two couplings, in a very few seconds, plug in the electric circuit, empty the tank and move the unit to the next tank, eliminating the necessity of having a pump at each battery in the field, as idle pumps at tank batteries have no revenue producing possibilities. The fundamental design of the unit with the straight through flow, with intake and discharge connections in actual alignment with the unit, makes the unit especially adaptable for installation without intricate manifold piping.

Power rates are now being offered where the units of this type for main pipe line pumping are competitive with Diesel engine equipment, and since the initial investment cost of the Rannett type unit is approximately 15 per cent of that for Diesel stations, it offers good possibilities for long pipe line systems handling either gasoline or crude oils. The unit as developed has practically the same efficiency as reciprocating units which have heretofore dominated the field in pumping in regard to efficiency and the flexibility of centrifugal pumps offer certain features which cannot be obtained with reciprocating types.

It is believed that the speed of installation of Rannett units on the Great Lakes pipe line system has broken all existing records for putting large size pump stations into operation, and no difficulties have been experienced in the operation of these units.

The type of pump used in the Rannett unit may be designed to handle crude oils of all different viscosities as well as the lighter fluids, such as water and gasoline, and high efficiencies can be obtained on all types of crude oil.

Pumping Unit Designed and Invented by Well Known Oil Company Officials

The Rannett pump, named after its inventors and patentees, was developed by Dan Moran, president of the Continental Oil Co., and E. O. Bennett, chief engineer of the same organization, to fill a much needed requirement for low cost economical pipe line pump stations which could be speedily installed. The soundness of their design and conclusions has been proven correct as evidenced by the installation of 13 units in booster stations on the Great Lakes pipe line, a 1,450-mile gasoline pipe line system extending from the Mid-Continent to the Great Lakes region.

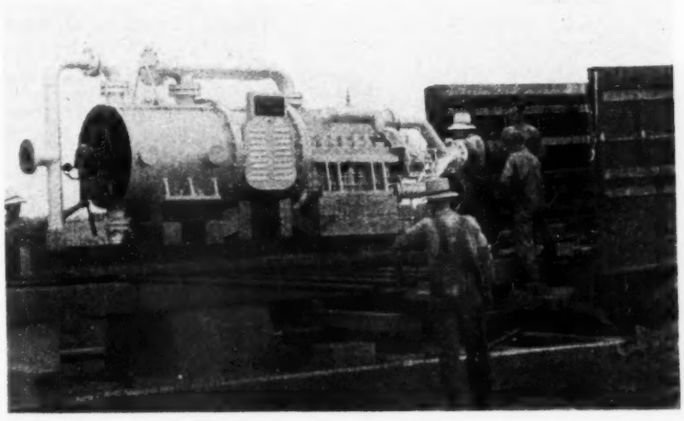
D. J. MORAN

E. O. BENNETT

The problem of designing low cost electrical pump stations was studied by these men for more than two years before the final development of the Rannett pump was accomplished. Contrary to all previous practice, gasoline and electricity were intimately mixed when in the design of their unit these men decided to cool an electric motor with gasoline.

Six weeks after first preliminary sketches were submitted to the manufacturer, the Allis-Chalmers Manufacturing Co., the first 8-inch size Rannett unit was in actual operation on the Great Lakes pipe line, setting a precedent for speed in the development of a radically new type of equipment of major importance in connection with the pipe line industry. Since the installation of the first unit in 1932 not a single change has been made in the design, indicating the thoroughness with which the first unit was planned and built.

Basic patents on this have been granted in the United States and Mexico and applications are pending in eight other foreign countries. Numerous other patents in connection with the development of the unit are also pending in the U. S. Potent Office at the present time.



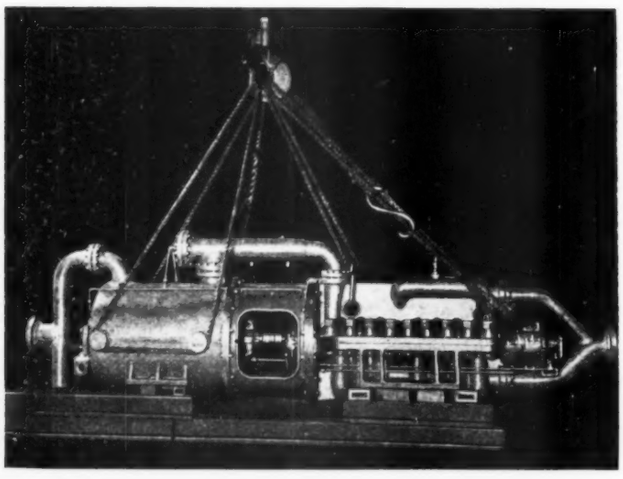
Rannett pumping unit, taken to station site by automobile truck, being skidded onto foundation

An Improved Pipe Line Pump

The RANNETT Type . . .

Unit Construction ... Gasoline Cooled Motor

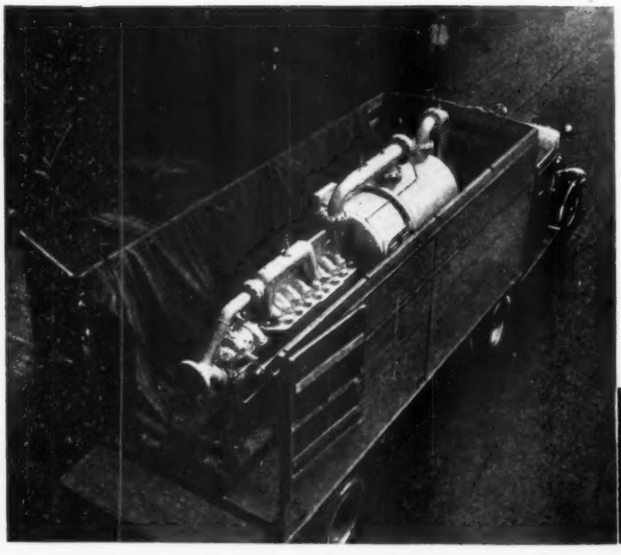
AN improved type of Motor Driven Centrifugal Main Pipe Line Booster Pumping Unit (THE RANNETT TYPE, unit construction, gasoline cooled motor), was furnished for the Great Lakes Pipe Line Company last year and was tried out in service for a year. This year twelve additional units, six of the same capacity as the original unit, and six having one-half this capacity, were purchased and installed along the 1500 miles of the Great Lakes Pipe Line Company's gasoline pipe line extending south and north from Kansas City, going through the States of Oklahoma, Kansas, Missouri, Iowa and into Minnesota and Illinois. These Motor Driven Booster Units increase the capacity of the pipe line about 50 per cent at a fraction of the cost of increasing the pipe line capacity in any other way. Recently one additional large unit (700 hp.) and one additional small unit (400 hp.) were purchased as spares, making a total of fifteen units purchased.



These units are of a novel design, the idea of Mr. D. J. Moran, President of the Continental Oil Company, and Mr. E. O. Bennett, Chief Engineer of this same company, the details of the design and the manufacture of the pumps and motors being carried out by the Allis-Chalmers Manufacturing Company. Some of the novel and useful features of the design are shown in the illustrations.

The first shows the unit construction and the rigidity of the structure, permitting the entire unit to be picked up in one piece.

The second shows one of the large units skidded and loaded on a truck for transportation to the station where the truck can be backed up to the foundations and the unit skidded directly in place.



The third shows a loop in the pipe line arranged in advance so when the pumping units were received a section of this pipe loop can be taken out and the pumping units connected in place very quickly.

The fourth shows the unit furnished last year as installed. The design is such that the installation is made outdoors, not necessitating a housing of any kind except for the control.

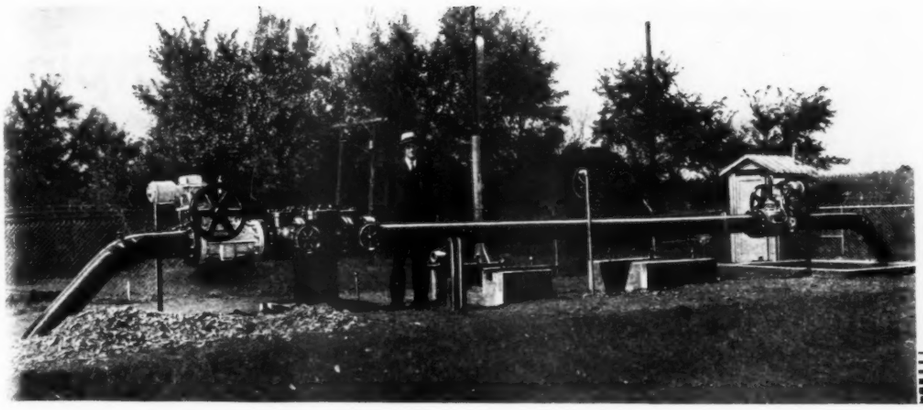
The 8″ pumps furnished were rated 38,000 barrels per day against 800 lbs. pressure, and the motors are 700 hp., across-the-line start, squirrel cage, totally enclosed, non-ventilated, gasoline cooled.

The 6″ pumps furnished were rated 19,000 barrels per day against 800 lbs. pressure, and the motors are 400 hp. with the same characteristics as the 700 hp. motors.

Some of the advantages of these units are:

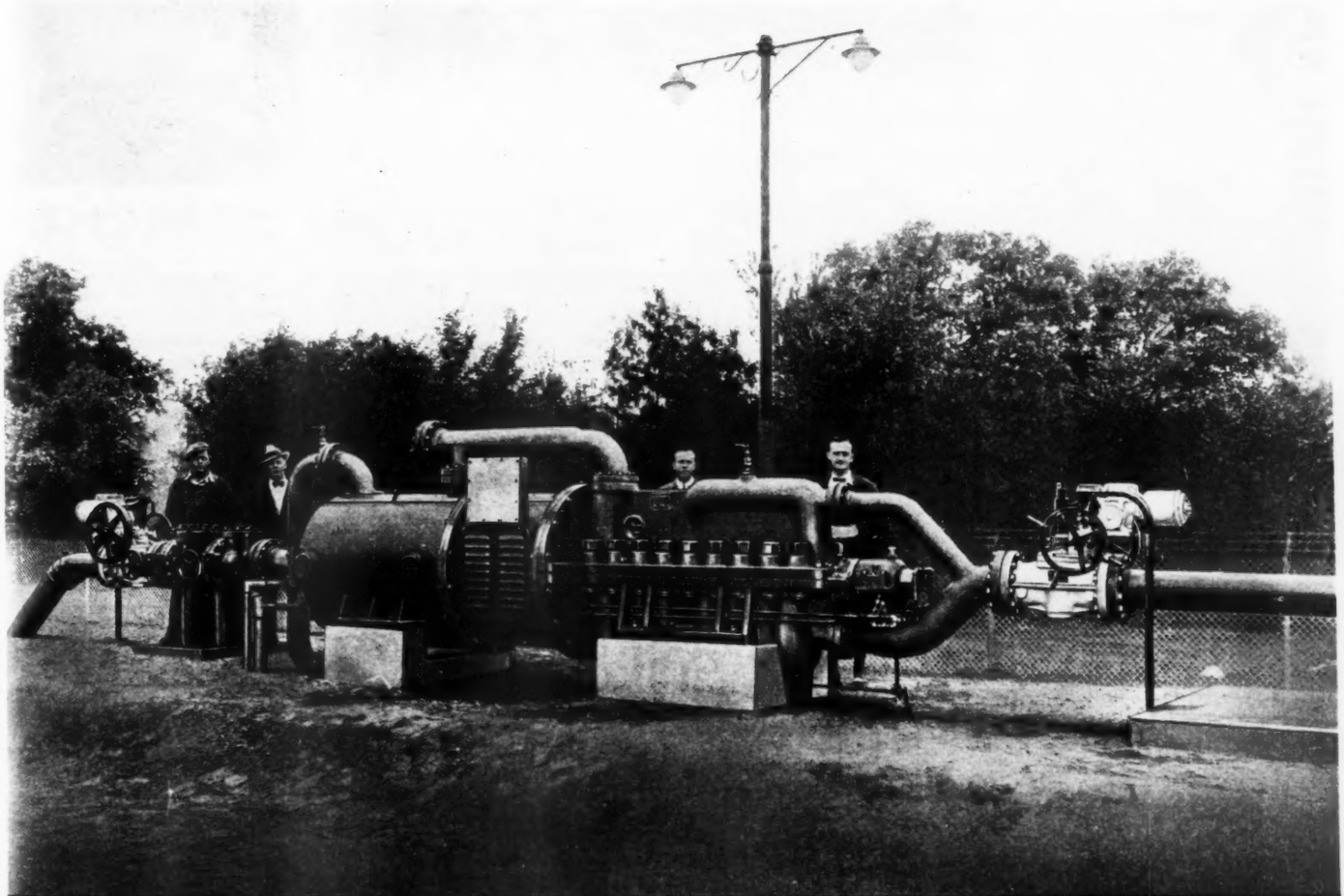
1. An air tight, non-ventilated motor, sealed against the elements—no difficulties from dust, dirt, moisture, etc., as might be encountered with the conventional type motors.

ALLIS-CHALMERS A-C MILWAUKEE



2. Higher motor eficiency due to reduction of windage losses.
3. Effective cooling by liquid, maintaining a more uniform temperature.
4. Inner motor barrel solid forging insuring against liquid leakage into the motor.
5. No bolted joints giving access to inside of motor are subject to line pressure—no pressure in tie piece or against motor heads.
6. Tie piece provides positive and exact alignment of pump and motor shafts with sufficient rigidity for unit handling. See picture No. 1.
7. Unit supported at each end without base plate makes less weight to handle (can be handled as a unit) and facilitates erection and placing in service in a short time, or facilitates connecting spare unit into line in case of emergency.
8. No building required and only small and simple foundations.
9. Unit self-contained—lubricating and oil cooling arrangements part of unit—no water required for cooling bearings, oil cooler, etc.
10. Temperature relays in explosion proof box connected to bearings and motor coils to shut down unit for hot bearing or hot motor, or thermocouple temperature indicators can be provided instead.
11. Unit suitable for across-the-line starting and the application of supervisory control.
12. Combined efficiency high, total first cost relatively low, so with reasonable power costs "Rannett" units provide the least expensive method of increasing line capacity or for new pipe lines under suitable conditions.

The designing and manufacturing facilities of the Allis-Chalmers Manufacturing Company and a knowledge of pipe line pumping requirements permitted the furnishing of these units very quickly considering their special nature, and the equipment has more than fulfilled every expectation.



ALLIS-CHALMERS

Allis-Chalmers Manufacturing Company, Milwaukee

Rannett Electrically Driven Centrifugal Pumping Unit Has Advantages Appealing to Industry

The Rannett pumping unit consists of an eight-stage centrifugal pump connected to a two-pole squirrel cage induction motor. The design, however, is rather novel and with advantages that the ordinary centrifugal pump, when direct connected to an ordinary motor, does not have.

Motor

The motor is the driving portion of the Rannett unit and is a three-phase, 2,300 volt motor with a full load speed of 3,560 r.p.m. The motor is housed in a forged steel casing, this casing being placed in a welded circular steel jacket with the ends of the circular space welded closed. The circular space provides for a flow of gasoline from the pipe line to the intake of the centrifugal pump, and by reason of contact with the inner shell or housing of the motor, cools the motor. The inlet to the motor being a forged steel yoke attached top and bottom to the shell for a uniform distribution. The outlet being a forged steel fitting at the top of the motor from where it passes to the inlet connection of the pump. In this pass is constructed the lubricating oil cooler.

Pump

The pump is an eight-stage horizontal split case centrifugal pump with the impellers arranged in two groups so that axial end thrust is largely balanced and no internal thrust arrangements are required. A special volute surrounds the periphery of each impeller. Between stages the fluid flows from this volute into a long diffusion nozzle, then through a long sweep return bend to the inlet passages of the succeeding impeller. This construction results in a maximum regain or recovery of pressure between stages as the flow is directed along smooth lines without any sudden change in alignment or velocity. The pump will test 82 per cent efficient when handling volumes approximating 35,000 bbls. per day against a head of 2,570 feet.

The material of the pump is as follows:

Impellers—Bronze, single suction type.
Casing—Nickel cast iron.
Wearing rings—Nickel cast iron.
Impeller wearing rings—Nitrited steel.
Shaft—Nitrited steel.

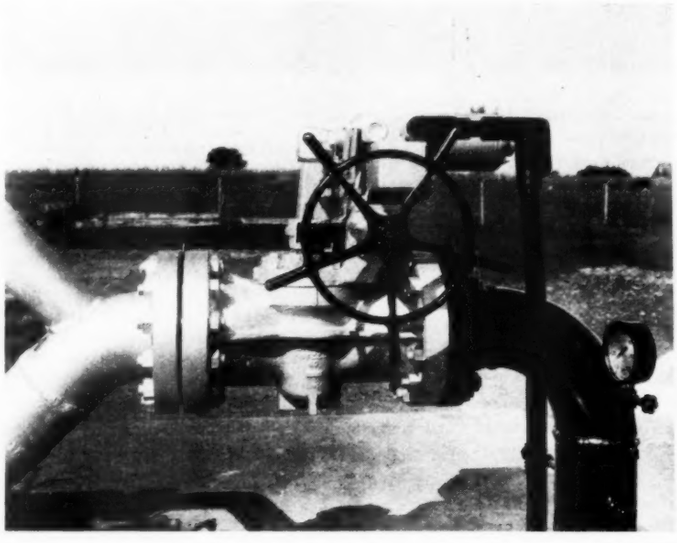
In order to maintain low pressures on the stuffing boxes of the pump, close clearance bushing is used at the base of both stuffing boxes surrounding the shaft. These allow only a slight leakage into an equalizing chamber. The equalizing chambers are inner-connected by piping to a sump tank.

All glands are split type and are made of bronze with a drip pocket located at the bottom to collect any gland leakage. This leakage being connected to the sump tank.

Thrust Bearing

Kingsbury thrust bearing is used at the outboard end of the pump so that if any unbalanced condition exists by reason of low suction pressures, thrust will be absorbed. This is a conventional type of lubricated pivoted shoe design, and when in operation, the bearing shoes and thrust sleeve bearing discs are separated by an oil film and therefore have no metallic contact; consequently there is a minimum of wear. The rotating thrust disc is held perpendicular to the shaft by the means of a long shaft sleeve, of which it is a part. Stationary pivoted thrust bearing shoes are constructed so that they are free to tilt both radially and tangentally, and when the bearing is in operation, the bearing faces of the shoe lie slightly inclined to the disc and oil films between them are slightly wedge shaped, barely more than .002 inch in thickness. The thrust disc dips down into the oil and revolves in the proper housing so that a viscuous pumping action is effected to deliver the oil under pressure to the thrust surfaces.

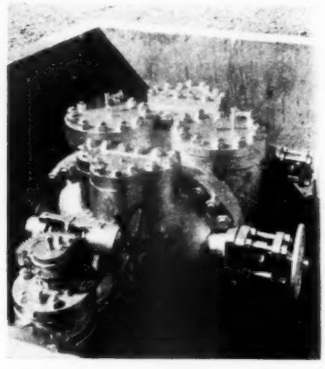
All oil circulation for the unit is by means of a lubricating pump connected to the pump shaft at the outboard end. This pump takes suction from the warm oil reservoir located in the housing between the pump and motor. It then discharges through a cooler as mentioned under "motor," and cooled by the pipe line gasoline. The cooler is a bent tube type element, seamless steel.



Motor driven discharge valve

Miscellaneous Appurtenances

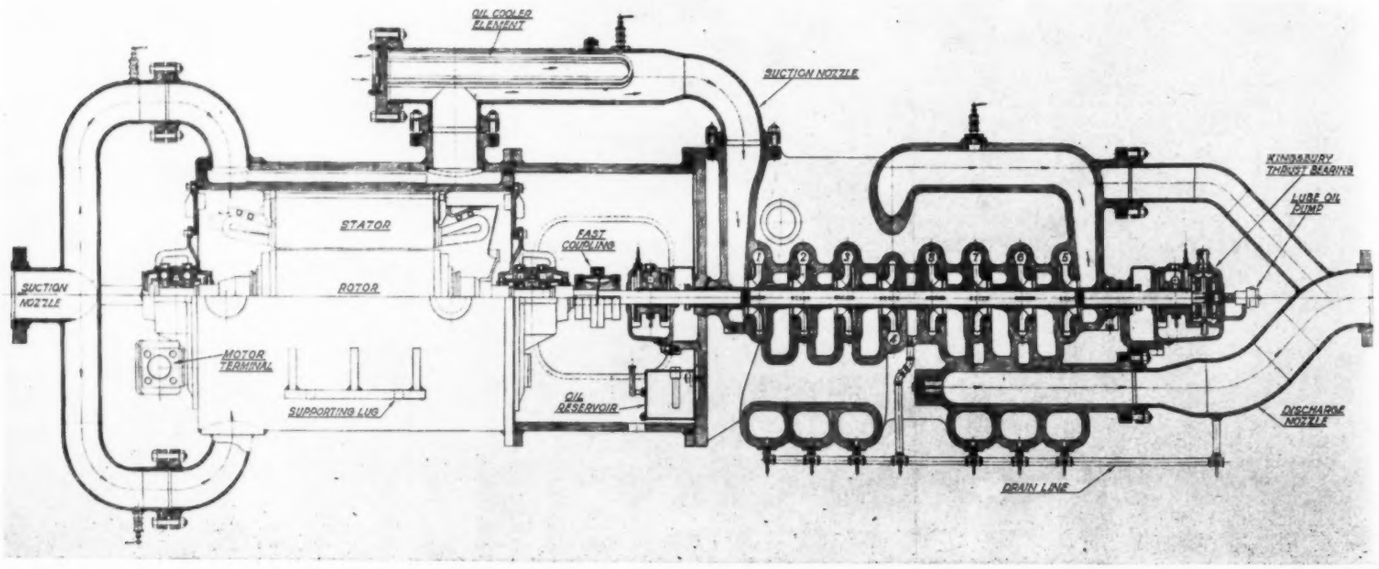
All temperatures in and about the Rannett pumping unit, including temperatures of the windings, the lubricating oil, and the pipe line gasoline, are determined by the use of thermocouples connected to a potentiometer mounted on the gauge board in the control room. Each separate lead is brought to a terminal box mounted on the pumping unit from which place it is carried to a conventional rotary switch serving a single indicating instrument. Temperatures are recorded hourly on the operating log sheet and are watched by the operator for any variation above or below normal.



Valve pit showing motor driven intake valve and dual strainer

Gasoline Recovery System

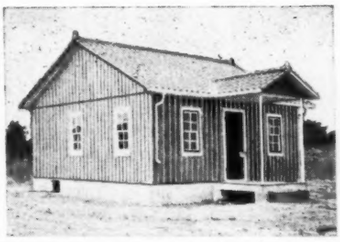
A gasoline recovery system is provided for all points of test and leakage and connected to an underground 1,000-bbl. tank. A small power pump at regular in-

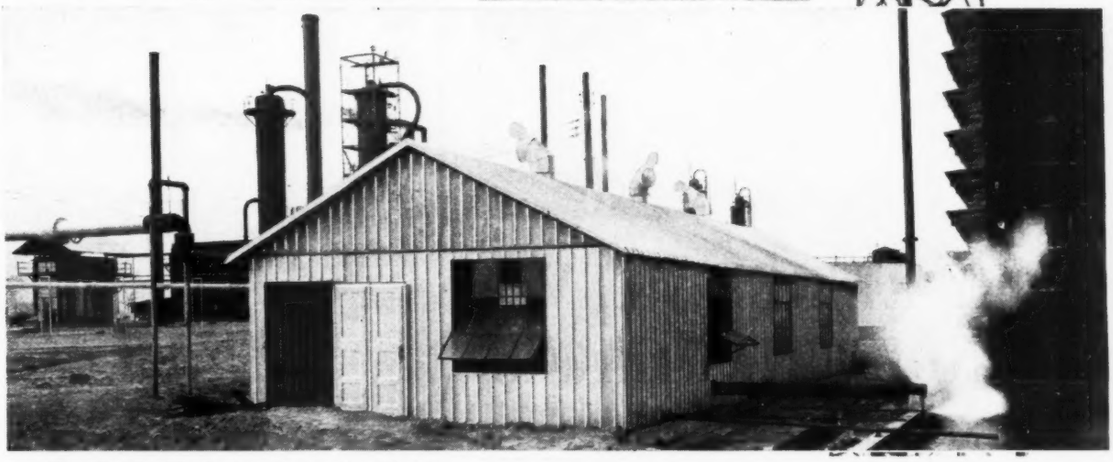


Assembly section for 6-inch by 5-inch Rannett motor driven centifugal pumping unit.

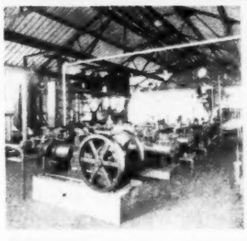
MADE ENTIRELY OF STEEL

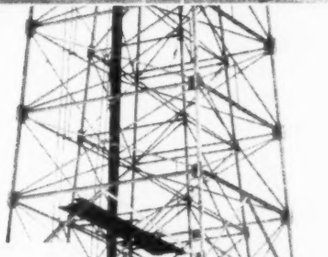
BUTLER





READY-MADE
STEEL
BUILDINGS
Shelter Every
Oil Field Activity





PUMP HOUSES

QUICK SHIPMENT—QUICK ERECTION

Pumping equipment lasts longer and works better when sheltered in fire-safe, weather-tight structures.

Always the most economical fire-safe structures, Butler Ready-made Steel Buildings, at the rock bottom prices which are still in effect can be installed with little if any more investment than frame structures sheathed in corrugated iron.

Considering their full salvage value they cost less. Butler Ready-made Steel Buildings are easily and quickly taken down and re-erected. Their standardized unit construction makes possible quick shipment and quick erection of any size and type of pump building required.

Telephone, wire or write for Ready-made Building catalog and proposal on the size and type building in mind. Or, see a Butler bolted tank and steel building field distributor.

BUTLER MANUFACTURING COMPANY

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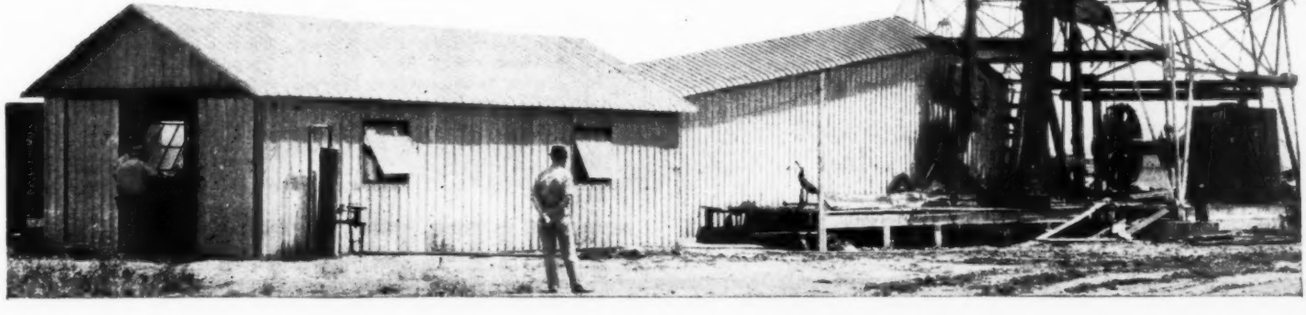

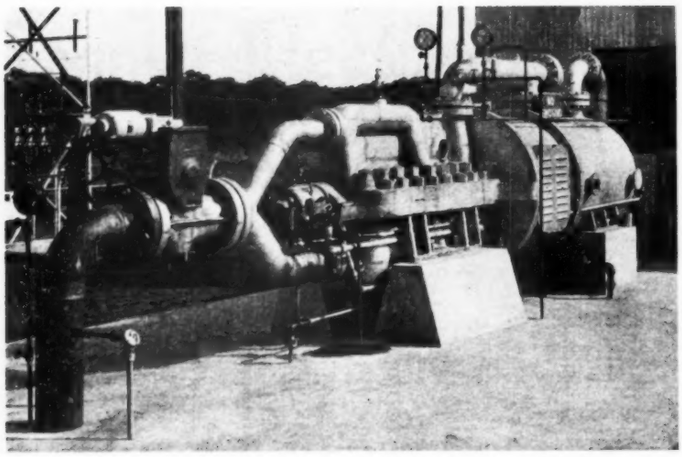

CROSBY RELIEF VALVES AND INDICATING GAGES

ARE STANDARD EQUIPMENT

on the

GREAT LAKES PIPE LINE

CROSBY RELIEF VALVES

OUTSTANDING FEATURES

(1) Nozzle throat, an exclusive feature, offers minimum resistance to discharge of fluid and insures maximum efficiency of flow through valve, actually giving 98% of the theoretical discharge of orifice.

(2) Nozzle seat and disc of special forged alloy steel, particularly resistant to erosion and corrosion.

(3) There are no bottom guides to coke up and keep valve from opening or to obstruct discharge through throat.

(4) The cone shaped nozzle is of very sturdy construction, perfectly symmetrical; permitting uniform expansion without distortion.

CROSBY INDICATING GAGES

HIGH PRESSURE DOUBLE TUBE GAGES

Tubes are made of special bronze, lathe turned to proper size, held to tip and socket by screwed joints — no solder is used. The entire mechanism of the gage is carried by the socket independent of the gage case.

SPECIAL STEEL TUBE GAGES FOR OIL SERVICE

These gages have forged steel movement with case hardened sector and pinion, forged steel socket and tip, steel tube, for use on high temperatures and pressures and with test gage accuracy.

CROSBY STEAM GAGE & VALVE CO.

BOSTON, MASS.

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GULF COAST REPRESENTATIVES

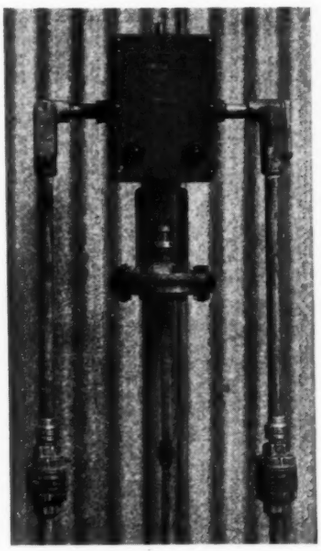
W. H. CURTIN & CO.

HOUSTON, TEXAS

R-K

Epichron Pressure Controller

See Editorial Write up on Great Lakes Pipe Line Installation Page 42.



Adaptable to pump pressure control, either suction or discharge, through control of Motor Operated Valves. Suitable for installations where valves and pressure control are either widely remote or installed at the same location. When used with R-K Motor Operated Valves, makes an ideal Motor Operated Reducing Pressure Regulator.

Suitable for pressures from 0 to 800 lbs.

Our Engineers will be glad to discuss your problems with you.

RUGGLES-KLINGEMANN MFG. CO.

Manufacturers Complete Line Regulating Devices.

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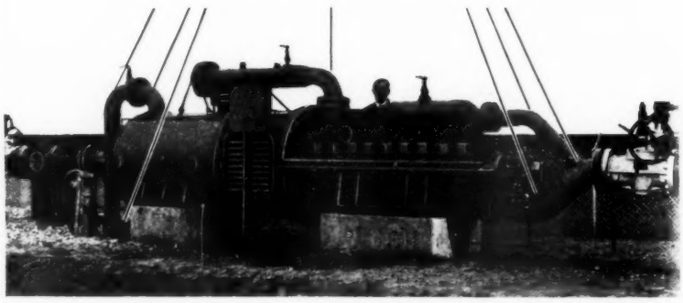
TUBE-TURNS



chosen for RANNETT Pump

BECAUSE of the care and skill with which *all* materials for the new Rannett Pump were selected, the choice of Tube-Turns indicates clearly the high opinion in which these modern welding pipe-fittings are held among the best engineering minds in the industry.

Designed for automatic, continuous operation, the Rannett Pump* *must* be free from "weak links" . . . . Tube-Turns, having uniform, stress-free walls and therefore uniform strength at all points, guarantee the highest possible dependability, not only in the fitting *but also in the weld itself.* In addition, the easy radius and smooth inner walls of Tube-Turns assure *lowest resistance to flow.* . . .

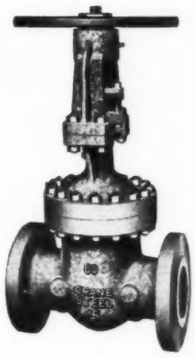
Write for all the facts about these super welding fittings that still sell at competitive prices, also the complete line of other Tube-Turn fittings for pipe welding—forged steel welding neck flanges, slip-on flanges, Van Stone welding nipples, welding tees, welding reducers and welding heads. *Address:* Tube-Turns, *Incorporated,* 1311 S. Shelby St., Louisville, Ky.

** J. D. Moran and E. O. Bennett, Inventors. Allis-Chalmers Mfg. Co., Builders.*

TUBE-TURNS

GREAT LAKES PIPE LINE

Pump Stations are CRANE Equipped



No. 76X Series 60 Gate Valve

Series 60 Venturi Cast Steel Flanged End Lubricated Plug Valve

THE development and installation of the Rannett pump marks a new era in oil field operation.

Crane Co. is proud to be identified with another advance in industry. The Rannett unit called for a very careful selection of equipment, such as illustrated on this page.

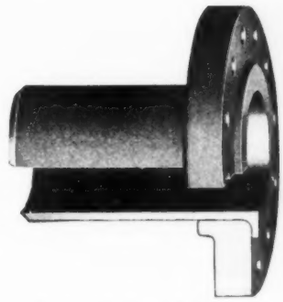
It is significant that, on so many progressive projects, Crane engineers have been ready, *in advance*, to answer every valve, fitting, and piping requirement.

Series 60 90° Elbow

Welding Elbow

NRA MEMBER U.S. WE DO OUR PART

Series 60 Tee



Series 60 Forged Welding Neck Flange

CRANE CO., GENERAL OFFICES: 836 SO. MICHIGAN AVENUE, CHICAGO
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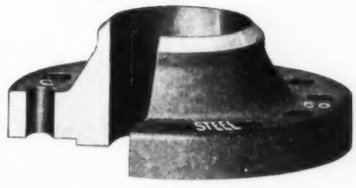
CRANE

Valves, Fittings, Fabricated Pipe, Pumps, Heating and Plumbing Material

Welding Header

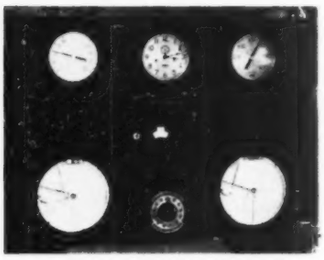


Series 60 Neck Flange

tervals picks up the gasoline from the buried tank and delivers it back into the pipe line ahead of the strainers. All points along the recovery system where bleeding or leakage occur, have closed sight feed glasses for supervisory purposes.

Instruments

Other than the potentiometer, there are the recording and indicating pressure gauges mounted on the gauge board in



Instrument board in control room showing control gauges

the control room that indicate and record incoming and outgoing pressures.

Motor Control

The motor control is either "across-the-line" type or "reduced voltage" type, depending on the power line serving the station. With across-the-line type, the motor remains connected directly to the line until shut down and is the simplest form possible, consisting only of an oil switch. The initial inrush current when this form of starting is provided, is approximately seven times full load amperes, a high inrush occurring only over a period of ap-

Motor end of unit showing electrical leads

proximately 12 seconds, for at the end of this interval, the motor is up to speed and the amperage is drawn down to a point considerably below full load, due to the fact that the unit is started with a closed discharge gate.

Where this high inrush of current is objectionable to power companies, the second method of starting is used; namely, reduced voltage starting. In the reduced voltage method of starting, the motor is connected to a tap on the auto transformer supplying a selected percentage of line volts. This lower voltage results in less torque on the motor and a lower volume of inrushing current, and a longer time to accelerate the unit. A timing element in the starter makes the transfer to full voltage or the next step of voltage, if more than one step of reduced voltage is used, and eventually, after a predetermined time sequence reaches full voltage of the motor. All time elements on reduced voltage and transfer is adjustable and selected in the field by test after put in operation. All starters are provided with relays for dis-

Control and Discharge Valve

The discharge valve of the pumping unit is automatically controlled from the suction pressure. The valve is of the plug

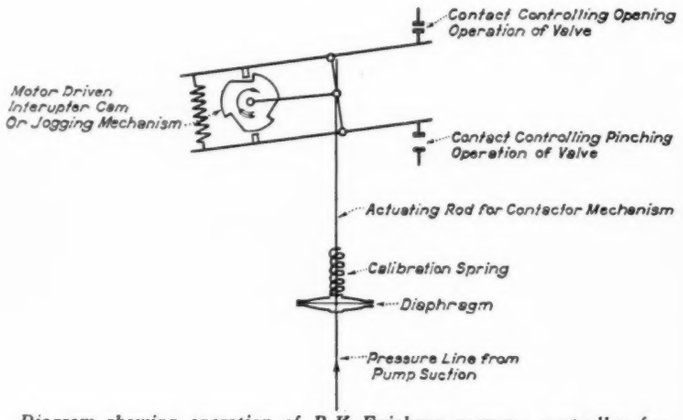

Contact Controlling Opening Operation of Valve
Motor Driven Interupter Cam Or Jogging Mechanism
Contact Controlling Pinching Operation of Valve
Actuating Rod for Contactor Mechanism
Calibration Spring
Diaphragm
Pressure Line from Pump Suction

Diagram showing operation of R-K Epichron pressure controller for throttling discharge valve

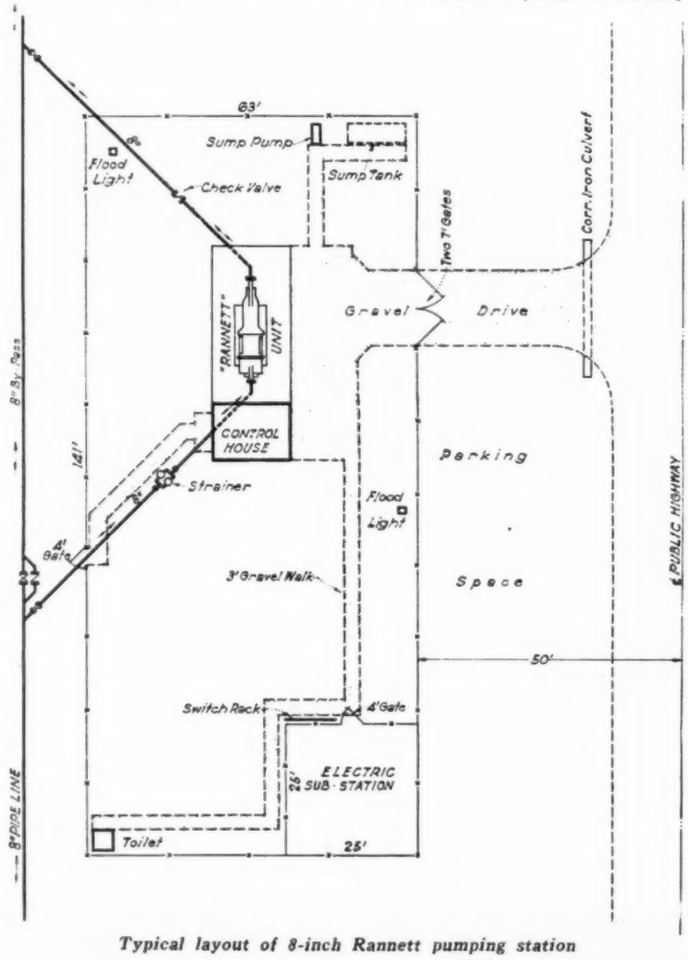
connection in case of power failure or mechanical difficulties.

The starting unit is completely housed in what is known as a cubicle type housing, and is located in a weatherproof house at the suction end of the Rannett unit, there being two compartments to the cubicle, one containing all 2,300 volt equipment and the other all 220 volt equipment. It is shipped from the factory completely assembled ready for the line leads and the motor leads. On the front of the cubicle there is a start and stop switch and a rotating switch for indicating voltage on all three phases and amperage on all three phases. All switching mechanism and transfer of voltage are oil immersed and the unit generally can be termed of an enclosed design with no flame or fire hazard.

type and has mounted on it motor mechanism for remote controlling either by start-stop button or by a special Epichron pressure regulator.

Epichron Pressure Regulator

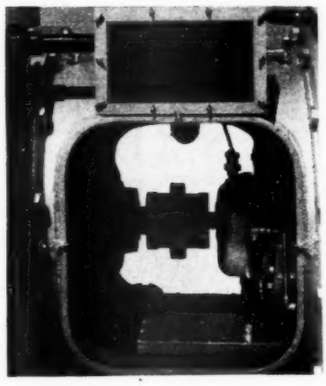
Pressure regulating valve for electric control of the discharge valve to the Rannett unit is actuated by the suction pressure in contact with gasoline resisting diaphragm, to which is connected a rod with a rotating element notched in such a manner that it makes contact either to open or to close the discharge plug valve. This mechanism successfully maintains an imcoming pressure of 10 pounds and is designed for a maximum of 600 pounds pressure which might exist with surges on the line with a Rannett unit shut down. The diaphragm is the only part of the Epichron regulator in contact with the line, liquid, and pressure, and the diaphragm is sensitive to pressures within "0" to "30" pounds. At 30 pounds the diaphragm is supported by a plate to resist all higher pressures.



Typical layout of 8-inch Rannett pumping station

Lighting

With the exception of the control house lighting, all lighting in and about the station is by floodlights, there being two 1,000-watt floodlights mounted on 25-foot



Center section of Rannett unit showing inboard bearings of motor and pump, flexible coupling and lubricating oil reservoir at bottom

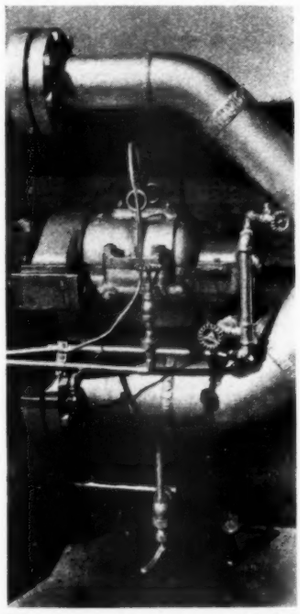
steel standards facing each other, and in a line approximately 30 degrees with the center line of the Rannett unit. This gives high light value in and about the unit, and diffused light to all points within the enclosure.

Heating

Heating of the control room where the operator is stationed is by means of a 5 kw. rail car type electric heater, this unit having three intensities of heat.

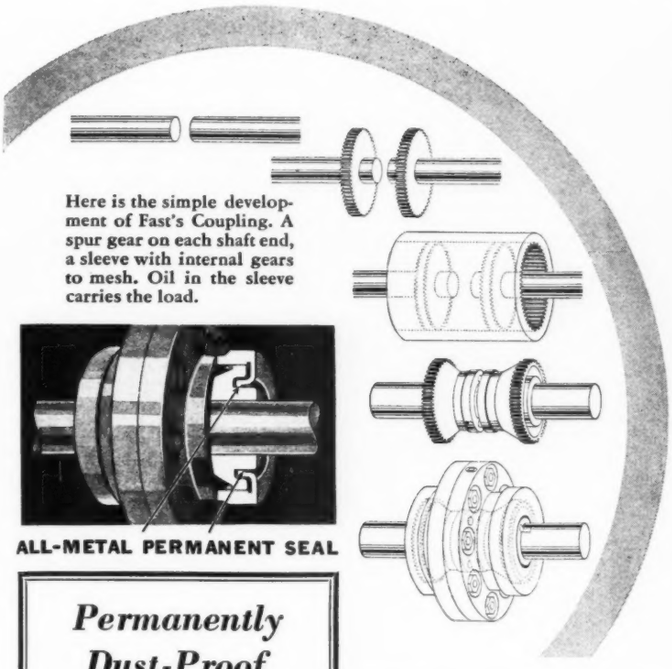
Auxiliary Power and Light Controls

All auxiliary power and light controls are placed on a switch rack just outside the electric substation fence. Power volt



Discharge end of pump showing Kingsbury thrust bearing and lubricating oil pump at extreme end of shaft

age being 200, three-phase, and light voltage 110. Equipment is mounted in cast iron weatherproof box with fuse safety switches and all switching is performed at this point with the exception of the sump pump which is remotely controlled from the sump pump location.



Here is the simple development of Fast's Coupling. A spur gear on each shaft end, a sleeve with internal gears to mesh. Oil in the sleeve carries the load.

ALL-METAL PERMANENT SEAL

Permanently Dust-Proof

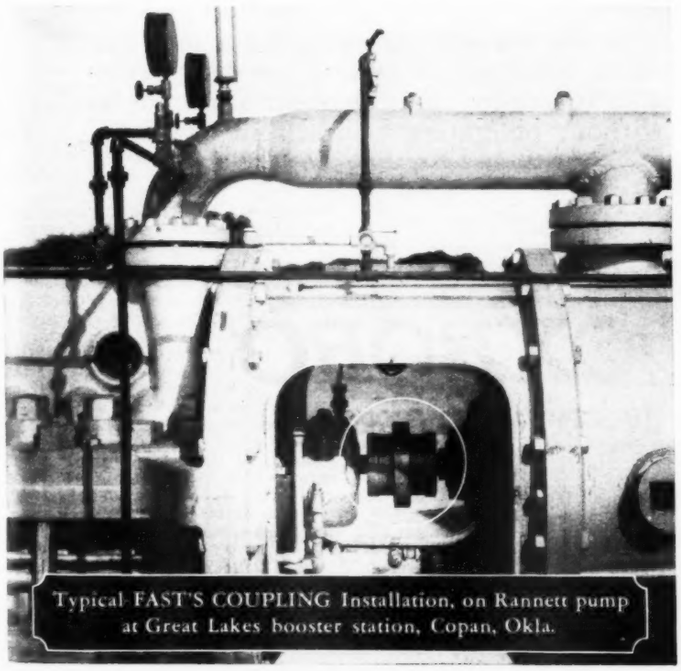
Look for the exclusive Fast principle of metal-to-metal bearing rings between hubs and casings. No rubber. No felt. Nothing to gradually wear and admit flying grit to the inner assembly of the coupling. The mathematics of design makes these metal-to-metal bearing rings the fulcrum points for the casing. Positive, permanent, metal-to-metal contact excludes flying grit, eliminating forever the possibility of breakdown from the destructive force of uninvited machine-destroying abrasives. Only Fast's Couplings have this permanent protection. Specify Fast's Couplings.

WE are proud that the advanced engineering exhibited in the new Great Lakes line, and in the Rannett pump, found in Fast's design the advanced engineering needed to make the pumping station flexible couplings permanently trouble-proof.

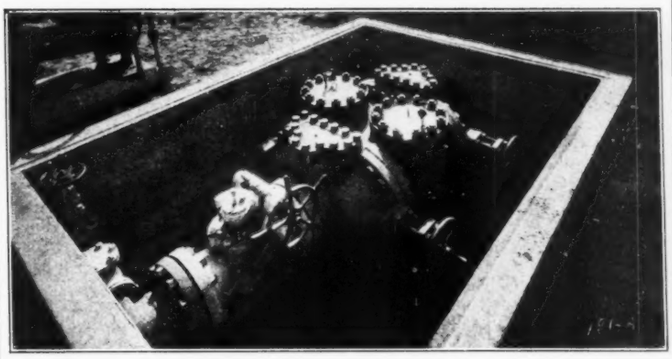
The Bartlett Hayward Co.
Baltimore, Maryland

FAST'S COUPLINGS

Self-Aligning: No Flexible Materials



Typical FAST'S COUPLING Installation, on Rannett pump at Great Lakes booster station, Copan, Okla.



A good investment in pipe-line pump protection

The Great Lakes Pipe Line Company thought it only good business to install ahead of each Rannett pump a Twin Strainer. Seventeen Twin Strainers in 8″ and 10″ sizes in the line. These strainers, operating normally under 40 lbs. pressure, were built of cast steel and tested under 1000 lbs. pressure to be able to withstand full line pressure, if necessary.

Twin Strainers give continuous service. One side is cleaned while the other is on the job; flow is diverted from one side to the other by shifting gate valves. Indicators show which side of the strainer is in service.

Twin Strainers are compact, heavily built and reliable. They are easy to install, quick to clean. They have large straining surface and the mesh of the baskets can be made to suit the service. Built for all liquids and for all required sizes and operating pressures. Over a period of 25 years, they have proven the one best strainer for continuous and satisfactory operation.

Ask for descriptive Bulletin A-5.

ELLIOTT COMPANY

JEANNETTE, PA.

District Offices in Principal Cities.

Change of Address

Always give your old address when notifying us of your new.

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PRODUCING REFINING ENGINEERING MARKETING
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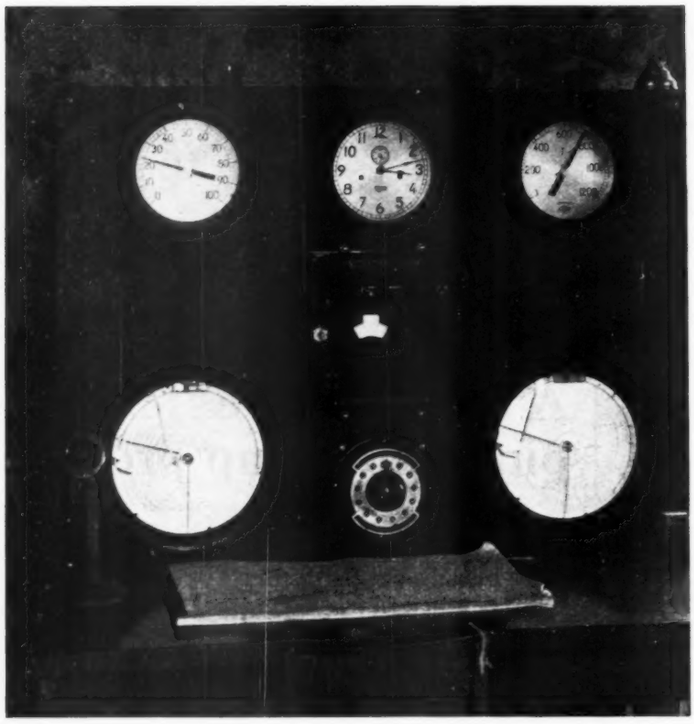


A complete description of our Indicating, Recording and Controlling Pressure Instruments is given in a new 40-page bulletin that has just arrived from the printer. Send for a copy of Bulletin No. 185!

Accurately Measuring Pressures on the Rannett Pump Unit

The importance of accurate pressure measurement in their Rannett Pump equipped booster stations led the Great Lakes Pipe Line Company to specify FOXBORO.

Each gauge shown on the board above is more than "just another gauge." It is a finely designed and constructed instrument that combines laboratory accuracy with field stamina. These gauges are ideally suited for use on such an outstanding development as the Rannett Pump Unit.

Our years of experience and many successful instrument installations give us the necessary background to recommend and furnish the correct instruments for pipe line stations, refineries, treating plants, and gas distribution systems. You may secure additional information or an estimate without obligating yourself in any way.

Write today!

In Pipe Line Stations or in Metering Stations, Instruments should be used to accurately measure Temperature, Pressure and Flow. Foxboro Meters for Air, Gas, Water, or any other fluid will maintain their accuracy longer than any others. Anti-Ambi Thermometers give accurate readings of the *true* line temperatures.

NRA MEMBER U.S. WE DO OUR PART

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

THE FOXBORO COMPANY, FOXBORO, MASS., U. S. A.

BRANCH OFFICES IN PRINCIPAL CITIES.

• • COMPLETE INDUSTRIAL INSTRUMENTATION • •

Power Companies Co-operated in Electrification of Rannett Stations on Great Lakes Pipe Line

FROM THE PETROLEUM ELECTRIC POWER CLUB.

The Great Lakes Pipe Line Co. was originally organized by the refining units of several large producers of gasoline in Oklahoma and Texas to facilitate the movement and transportation of their products to the Great Lakes center of marketing and also market centers between Oklahoma and Chicago, such as, Kansas City, Des Moines and Omaha. The refining units were allocated space in the pipe line commensurate with individual investment they cared to make, and individual investment of such refinery again was based on their production and marketing sales.

In the 8-inch pipe line as originally planned, the stations were located about 50 miles apart and the capacity was such as would be obtained with originating pressures of 800 pounds. Various blending occurs at the terminals to meet the specifications desired for the locality and the consignee.

The movement of gasoline through the pipe line is at the rate of about 75 miles per day. The pipe line being filled with an uninterrupted column of fluid makes it possible for its instantaneous delivery at loading terminals. For each barrel entering the pipe line at the originating station, a barrel is necessarily delivered simultaneously at its selected destination.

The original designers of the pipe line anticipated the needed capacity over a period of years, hence the original engines and pumps were installed of sufficient horsepower and capacity, at very little additional first cost, to provide for an increase of capacity.

Electric Driven Pumps

In casting about for booster pump equipment, operating economies were first considered of prime importance, and next in importance was the time element of delivery and installation. Such economic comparisons of operating expense over a five-year period caused the selection of electric driven centrifugal pumping units to be operated with electric energy supplied by existing power utilities in whose territory the booster stations were located. Quite a few of the power utilities in Illinois and Iowa, upon being solicited for services, and desiring further information of load specifications and operating conditions, called together the Petroleum Electric Power Club, an organization of Power Sales Engineers having to do with power sales to the oil industry in the Mid-Continent oil field area, and satisfactory arrangements for providing service at each station were worked out. The power utilities then offered adequate capacity at each station, also offered rate schedules to meet the design engineer's requirements of operating conditions.

The next step was to secure quick delivery of pumping equipment and an airplane trip to Milwaukee to Allis-Chalmers Manufacturing Co., a large manufacturer of both pumps and motors fabricated in the same shop, resulted in delivery in record time, of a 700-horsepower electric motor driven centrifugal pump to operate at 800 pounds and deliver the desired capacity increase.

The unit is known as the Rannett pump. Tests conducted indicate an overall efficiency of 78 per cent from "wire to gasoline." A unique feature in motor design is developed by passing the incoming stream of gasoline (averaging annually about 50° to 60° F.) around the motor stator for cooling, thereby increasing its efficiency somewhat over present air-cooled design now in general use.

The increase of desired ultimate capacity was accomplished by installation of 7,700 horsepower of electric motors in 13 Rannett pump units located as shown by legend on general map of the pipe line system.

Seven of the above Rannett pump units were of 700 horsepower installed in the 8-inch line from Oklahoma to Des Moines, and six of the Rannett units of 400 horsepower were installed in 6-inch line from Des Moines to Chicago and 400 horsepower in the line from Des Moines to St. Paul were of standard type centrifugal pumps.

Through the efforts of the officers and members of the Petroleum Electric Power Club co-operating with the Electric Utilities serving the territory in which the booster stations are located, power contracts of uniform wording were adopted resulting in the installation of seven 700 horsepower motor stations, six 400 horsepower motor stations, one 300 horsepower motor station and one 100 horsepower motor station, with a total installed motor horsepower of 7,700 on a total of 15 stations.

The following utility companies will benefit from revenue received from the following station installations:

Pump station name—	Location— State of	Near town of	Power service rendered by utility company—	H.P.
Copan	Oklahoma	Copan	Public Service of Oklahoma	700
Altoona	Kansas	Altoona	Kansas Gas & Electric	700
Selma	Kansas	Selma	Kansas Utilities Co.	700
Bonita	Kansas	Kansas City	Kansas City Pr. & Lt. Co.	700
Smithville	Missouri	Kansas City	St. Joseph Ry. Lt. Ht. & Pr. Co.	700
Lamoni	Iowa	Osceola	Iowa Southern Utilities Co.	700
Indianola	Iowa	Des Moines	Des Moines Electric Light Co.	700
Prairie City	Iowa	Des Moines	Des Moines Electric Light Co.	400
Guernsey	Iowa	Iowa City	Iowa Electric Lt. & Pr. Co.	400
West Branch	Iowa	Iowa City	Iowa Electric Lt. & Pr. Co.	400
Cordova	Illinois	Cordova	Rock River Elec. Lt. & Pr. Co.	400
Eldena	Illinois	Streator	Illinois Northern Utilities Co.	400
Elburn	Illinois	Chicago	Illinois Pr. & Lt. Corp.	400
Roland	Iowa	Roland	Iowa Elec. Lt. & Pr. Co.	300
Newport	Minnesota	St. Paul	Northern States Pr. Co.	100

Outdoor Operation Presented Many Problems Which Inventors and Manufacturers Solved

Last year when the Great Lakes Pipe Line Co. was confronted with the necessity of installing booster stations, D. J. Moran, president of the Continental Oil Co., and E. O. Bennett, chief engineer, had certain ideas regarding the type of motor-driven centrifugal pumping unit to be employed but no such unit had previously been built. These ideas were for a unit where the gasoline would come in at one end and go out at the other, being passed around the motor for cooling. The new unit also should be suitable for outdoor installation and of a construction so tied together and such rigidity that it would not require a base plate, could be handled in one piece and mounted on simple foundations.

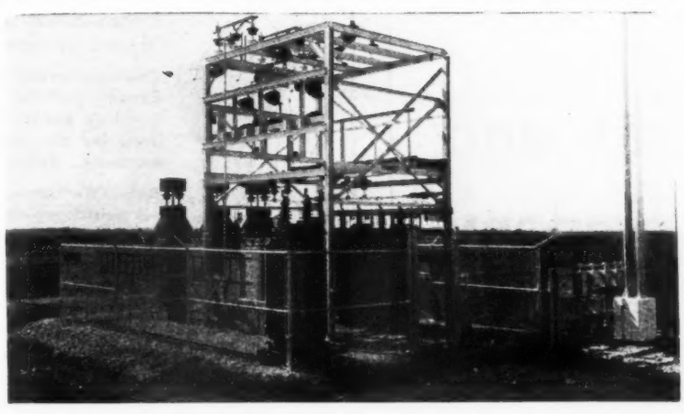
It is evident that outdoor operation requires a type of equipment with the minimum of exposed moving parts as well as minimum attention for lubrication and operation. Continuously subject to wind, dust, rain, snow and sleet, a totally enclosed, nonventilating type of motor was necessary as if air cooling were utilized, the cooling passages of such a motor might become clogged or obstructed. The expedient was, therefore, adopted of circulating the gsaoline being pumped through the pipe line and having all the gasoline being handled pass through the motor jacket, thereby affording an efficient means of cooling a motor of large size as well as providing a motor sealed against the elements. The Allis-Chalmers Co. had previously built some D.C. motors where liquid cooling was employed so was able to figure on these large induction motors using a similar type of cooling.

The pressures to be handled also needed careful consideration, the suction pressure at a unit being 400 pounds when the pump was not running and when running the suction pressure was lowered to around 20 pounds, but the discharge pressure was 800 pounds. Considerable use was, therefore, made of welding and the design of the motor yoke so worked out that there were no bolted joints to keep tight through which leakage might occur from the motor jacket into the inside of the motor. Neither was any liquid passed through the tie piece joining the motor and pump together, the only pressure joints, therefore, being small flanged joints except the pump casing which has very liberal flanges and the design so worked out that a double row of large bolts can be used for bolting the halves of the pump casing together.

The pump is of the split casing, eight stage type having two groups of single suction, enclosed impellers placed back to back to balance and thrust so that the Kingsbury type pump thrust bearing is more than adequate to maintain the impellers properly located in the casing. The casing is bolted rigidly to the motor housing by a welded steel tie piece which contains the lubricating oil tank and the louvre doors over the openings on each side. This tie piece makes a rigid structure so that the feet on the lower half pump casing and the motor housing support the unit on the foundations eliminating the need for a base plate. The motor housing is made up of a forged steel inner barrel with cooling fins machined integral.

A special unit of this kind involves numerous, special features of design and careful co-ordination of the pump and motor ends to their specific duties, together with the fitting together of these parts so they will work together as a unit to the best possible advantage and at maximum efficiency. The Allis-Chalmers Manufacturing Co., being builders of both motors and centrifugal oil line pumps, were selected to design and build the first unit which was purchased to try out the feasibility and advantages of the proposed new design. The matter came to a head very quickly and the Allis-Chalmers engineers worked practically day and night to prepare the designs for customer's engineers to criticise and approve before the order was placed. Even then there were many points of a design and manufacturing nature to be settled but notwithstanding the fact that both the motor and pump had to be designed from the ground up, patterns made and details settled, the first pump was shipped in 88 days from receipt of order which included about 10 days' time testing and making minor changes before shipment. A second new pump (the 6-inch size with 400-horsepower motor) designed complete, with patterns made this summer, was shipped in 55 days which indicates the amount of time required on the original design, as the smaller unit followed out the design of the original one except for the smaller sizes of parts.

The original 8-inch unit shipped last year has now been in service over a year and this year six 8-inch and six 6-inch units have been shipped and installed with one 8-inch and one 6-inch on order as spare units, showing that the original expectations for this revolutionary type of main line booster unit have been realized.



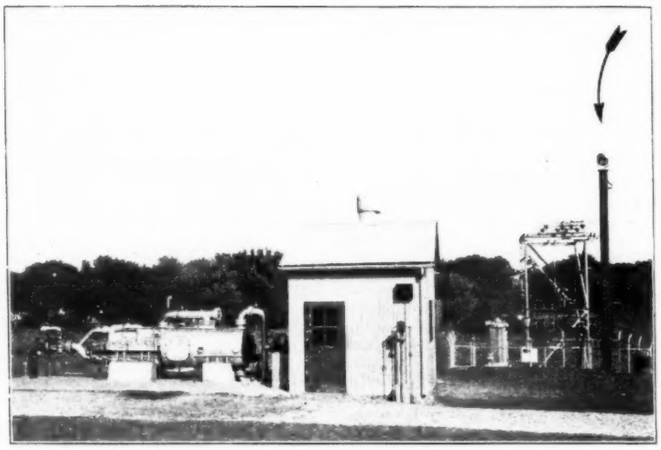
Electric substation on Great Lakes pipe line

We are pleased to share in the success of the Rannett Pump and the Great Lakes Pipe Line Co.

Kansas Gas and Electric Company

Wichita, Kansas

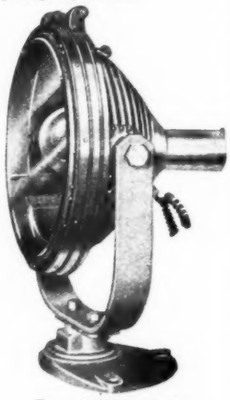
Efficient and Economical Outdoor Lighting with PYLE-NATIONAL floodlight projectors



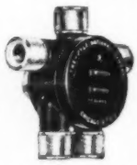
Great Lakes Pipe Line booster station, Copan, Okla.

Dependable night lighting at each of the Great Lakes Pipe Line stations is provided by two Pyle-National Type 1680 floodlight projectors. High optical efficiency and substantial construction throughout insure brilliant uniform lighting and reliable service regardless of the weather.

The Pyle-National line of floodlight projectors for refinery, pipe line, and filling station lighting includes sheet aluminum units in sizes from 10 inch to 18 inch diameter, as well as Type BDL projectors for diffused lighting in sizes for single, two, three and four lamps. Catalogs giving complete descriptions of Pyle-National lighting equipment will be sent upon request.

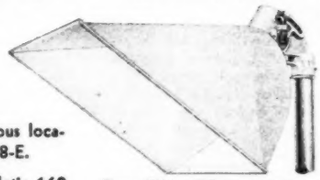


Type 1680 projector



Explosion proof junction box YT-102

Explosion proof conduit fittings; for gasoline pumps, refinery, and other hazardous location wiring. Bulletin 168-E.



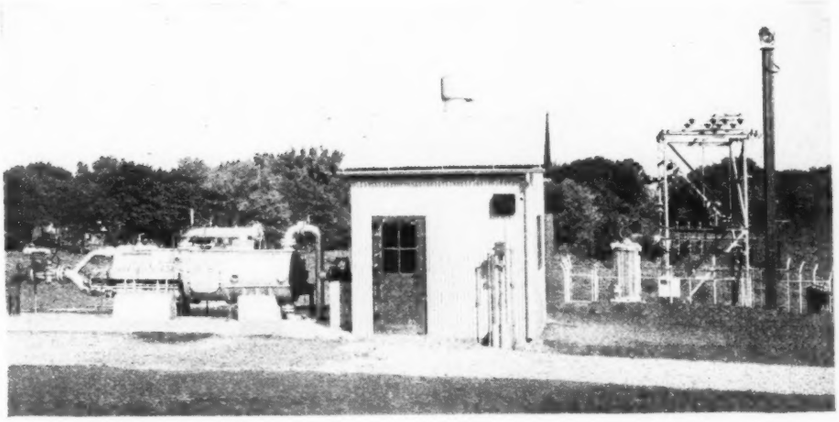
Type BDL-105 projector

Safety Switches; Bulletin 160 describes a complete line of safety switches for refinery and filling station wiring installations.

The PYLE-NATIONAL COMPANY

1334-58 North Kostner Avenue Chicago, Illinois

815 East 3rd Street, Tulsa, Okla.



ELECTRIC MOTOR DRIVEN PIPE LINE PUMPING STATION

THE TREND in power for pipe line pumping is indicated by this modern 34,000 barrel (per day) station now operating at Copan, Oklahoma — a sister station of others on the lines of the Great Lakes Pipe Line Company operating between Muskogee, Okla. and Chicago.

THE 700 H. P. motor in the Copan station is served from the transmission lines of the Public Service Company of Oklahoma.

THIS COMPANY invites pipe line operators to communicate with its commercial department for rates which are attractive for pipe line pumping in the territory served by the Company in eastern Oklahoma.

Consider Electric Power

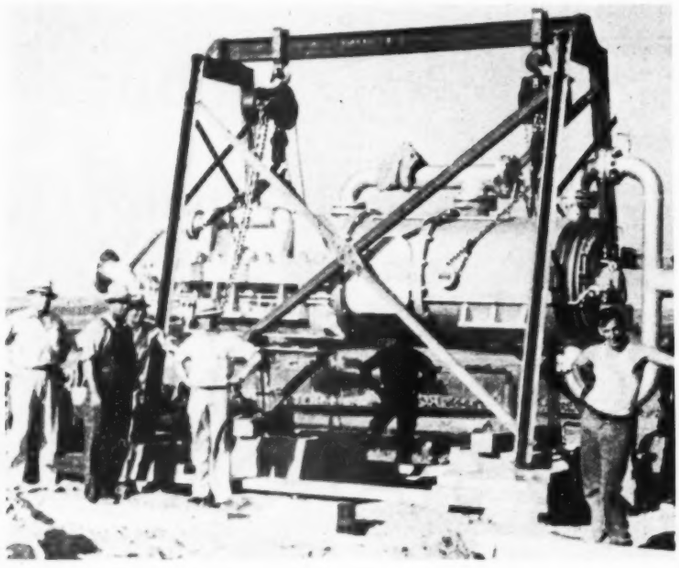
Public Service Company of Oklahoma

Public Service Building . . . Tulsa, Oklahoma

Mobility Quite a Feature of Rannett Pumping Unit

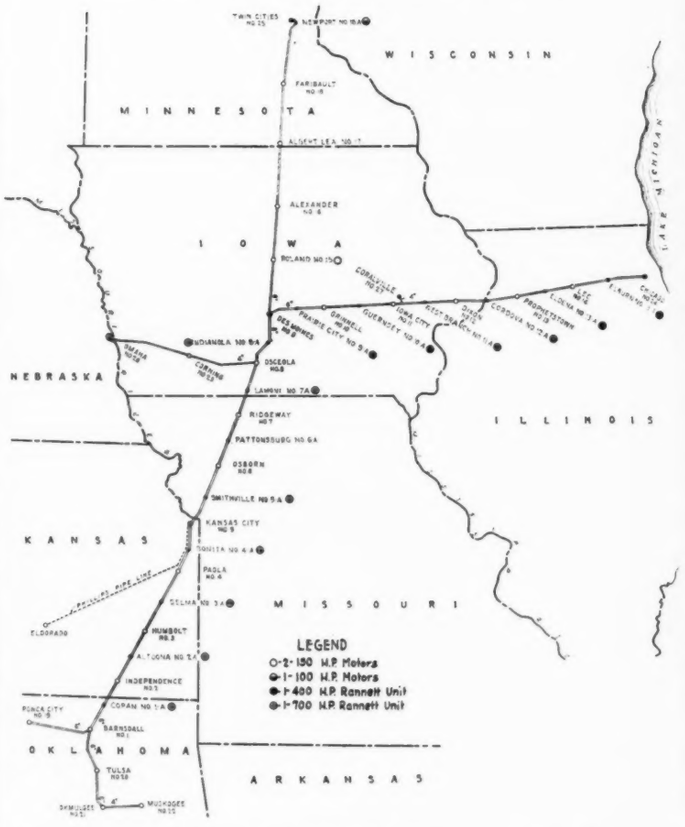
Its mobility is one of the features of the Rannett pumping unit. The entire unit can be set up in the factory and made ready there to bolt on the line, if shipping facilities will permit shipment of the unit intact. However, the unit is so constructed it can be split into two or three parts for shipment by automobile truck.

On arrival at the station site the entire unit is skidded upon wooden blocks placed on the permanent concrete block foundation. Two A frames with two 25-ton hoists with a single hitch to each hoist are then used to suspend the unit in the air while the wooden blocks are removed. The pumping unit then can be lowered upon the concrete blocks and bolted into place and connected into the pipe line. The whole operation, from time of arrival at the station site, until the pumping unit is connected in the line and operating requires approximately two hours' time.



Lowering a Rannett pumping unit to the concrete block foundation.

Map of the Great Lakes Pipe Line

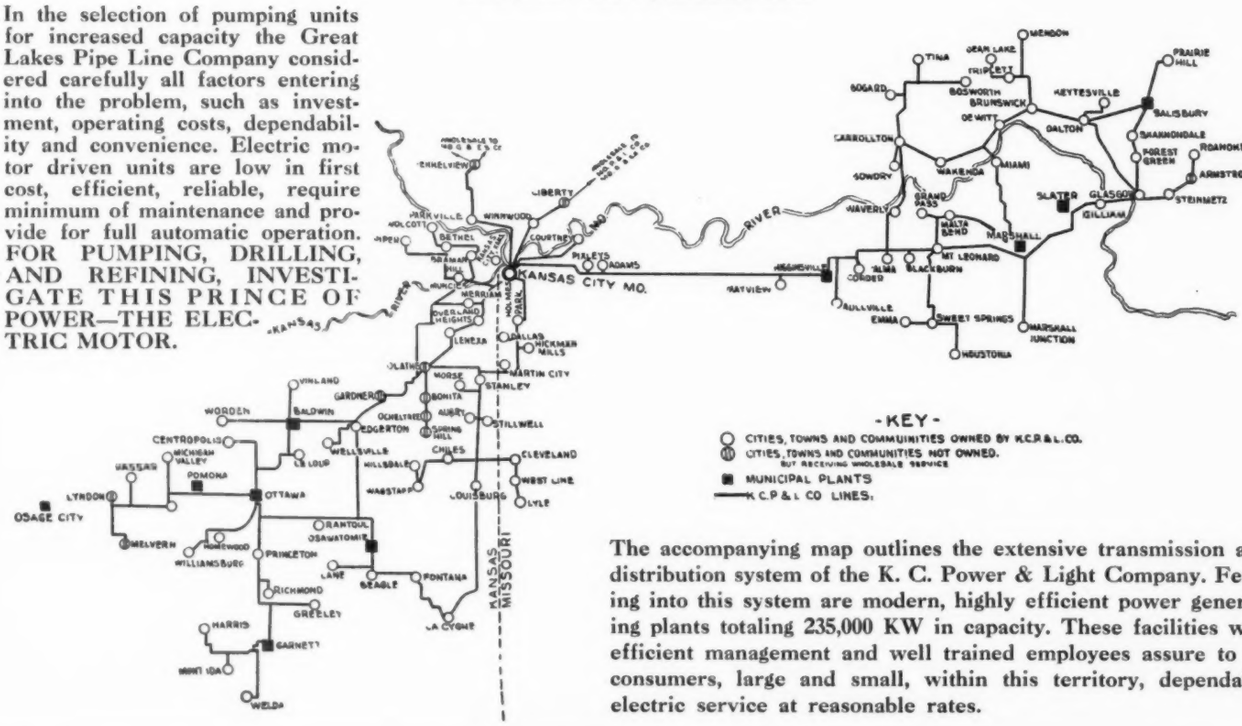


Rannett equipped stations are shown with horsepower of electric motors

KANSAS CITY POWER & LIGHT CO.

KANSAS CITY, MISSOURI

In the selection of pumping units for increased capacity the Great Lakes Pipe Line Company considered carefully all factors entering into the problem, such as investment, operating costs, dependability and convenience. Electric motor driven units are low in first cost, efficient, reliable, require minimum of maintenance and provide for full automatic operation. FOR PUMPING, DRILLING, AND REFINING, INVESTIGATE THIS PRINCE OF POWER—THE ELECTRIC MOTOR.



The accompanying map outlines the extensive transmission and distribution system of the K. C. Power & Light Company. Feeding into this system are modern, highly efficient power generating plants totaling 235,000 KW in capacity. These facilities with efficient management and well trained employees assure to all consumers, large and small, within this territory, dependable electric service at reasonable rates.

Modern Practice of Engineering Has Simplified Design of Air-Gas Lift Compressor Plants

By L. G. E. BIGNELL
Petroleum Engineering Editor

While the air-gas lift method of producing oil had been used in other fields prior to the discovery of the Seminole area, it was in that district that the use of this method received its greatest application.

There were hundreds of compressors installed at wells there during 1926, 1927 and 1928 and through the use of the gas lift the daily production exceeded 500,000 bbls. per day by August 1, 1927. During this period of intensive development many refinements were applied to the gas lift practice and since the days of the Seminole boom engineers and manufacturers of compressors have given much thought to means of improving the machinery and the design of the gas lift plant for the oil field.

With the formation pressure dropping below the flowing point in the Oklahoma City Field it has been necessary to resort to the use of mechanical lift methods and most operators have turned first to the gas lift equipment. This was quite natural because there has been an abundance of gas available and much of this gas has been under high enough pressure to serve as booster gas to assist in the flowing of low pressure wells. This practice was followed for a time during the early period of field development.

Natural gasoline plants have been installed in the field since the early development period and gas from them has been available for gas lift purposes. The early needs of the wells in the Oklahoma City Field was additional gas to assist in starting the natural flow rather than gas for actual production by gas lift, but gradually, as the formation pressures have decreased, it has become necessary to actually produce the fluid by mechanical methods.

The wells in Oklahoma City are all over 6,250 feet deep but aside from the depth they do not present any special problems in mechanical production. They are cased with 7 or 9-inch casing and finished with 2½-inch tubing. The gas under pressures up to 1,500 pounds per square inch for kickoff and 750 pounds for normal operating conditions is forced down the annular space between the tubing and the casing. In a few instances the compressed gas is pumped down in the tubing and the fluid produced through the annular space.

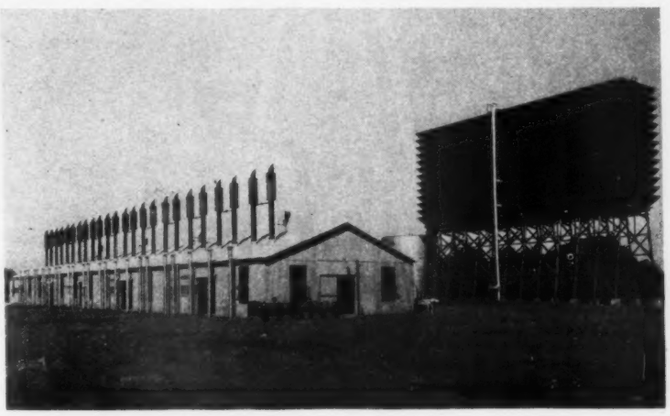
There are now several special compressor plants for gas lift duty only installed in the Oklahoma City Field. Many other wells are being produced by gas lift securing the compressed gas from the high compression cylinders of the machines in the natural gasoline plants. It is thought that in a comparatively short time all wells in the Oklahoma City Field will be equipped for mechanical production and most of them will use gas lift first.

Modern Plant Installed

When the wells on the Wirt Franklin Petroleum Corp.'s B. J. Theimer lease, in the SE Section 2-11n-3w, producing from the Simpson below Wilcox formation began to decline in daily production it was decided to install a gas lift plant on that property of sufficient size to produce from seven to eight wells at a time by this method. While there are 11 wells on this lease a plant of this size is ample to secure all of the oil permitted under the orders of the Corporation Commission.

All of these wells make an appreciable quantity of water with the oil, some producing as high as 90 per cent salt water. This condition makes it quite necessary that the compressor plant be so designed as to give the highest possible efficiency with the lowest operating cost. Flexibility in operating conditions is also quite necessary for a plant of this kind for there are many conditions that do change at the various wells from time to time that require special features of plant design to accommodate them.

The contract for a turnkey job was let to Clark Brothers Co. of Olean, N. Y., with branch office in Tulsa. They in turn sublet the construction work to J. F. Prichard & Co., Kansas City, Mo., who were in charge of the actual installation. This plant was installed and running within 60 days after work started and marks a step forward in both plant design and installation.



General view of air lift plant and cooling tower Wirt Franklin Petroleum Corp's Theimer lease, Oklahoma City field

The plant consists of twelve 230 horsepower Clark Brothers Co. high speed 17 direct gas engine driven compressors. These machines are of the super two-cycle type and are set in a straight row upon substantial concrete foundations and housed in an all-steel building, 200 feet long by 32 feet wide. The piping for gas and water is placed in a convenient position outside of the compressor building, with water cooler system beyond the piping. The whole arrangement is very compact and all parts are easily accessible, a detail that adds much to the efficiency of operation and eliminates many shut downs that might occur if lines were buried or were not visible to the plant operators at all times.

Each compressor is equipped with a 17 by 20-inch gas engine power cylinder. This means 17-inch diameter with 20-inch stroke and this 20-inch stroke is also common to all gas compressor cylinders on all machines although they vary in diameter. The plant is so designed that three-stage compression is possible by manipulation of valves and fittings. Normally the plant will receive the incoming gas at about 10 pounds pressure and compress it to 72 pounds in the first stage, then to 290 pounds in the intermediate stage and discharge into the field lines at 750 pounds per square inch.

For building up 1,500 pounds pressure for starting wells it is possible to so operate this plant as to use two 5½ by 20-inch stroke cylinders on the two end compressors to build up the 750-pound normal working pressure to the high pressure necessary for kickoff. If necessary this combination of units can be maintained at this high pressure indefinitely without overloading or in any way impairing normal plant operation.

Plant Design

The wet gas from the wells used in a closed circuit between wells and compressors, with no make up gas added, is delivered to the plant through a 12-inch pipe line gathering system. This gas reaches the plant at about 10 pounds pressure and passes through intake scrubbers where foreign material is removed.

This gas then passes direct from the scrubbers to a 20-inch diameter header that is outside of the compressor house but parallel to the end of the compressors. The 16 by 20-inch low side cylinder on nine compressors receives this gas and compresses it up to 72 pounds and delivers this compressed gas to the first-stage coolers. These coolers are set in a central position between cooling tower and compressor plant and after the gas has been cooled it is delivered to the first-stage accumulators working under pressures of about 70 pounds.

This gas, now at 70 pounds pressure, is next delivered to a 12-inch diameter pipe header, also outside of the plant, and parallel to the other headers and the cylinder ends, and from the header it goes to the 8½ by 20-inch side of nine compressors. Here it is compressed to the intermediate stage of 290 pounds per square inch and delivered to intermediate stage coolers. These coolers are set alongside of the low stage coolers and between cooling tower and compressors.

All gas that has entered the plant has now been compressed to 300 pounds, approximately, and is next delivered into an 8-inch diameter header and from this header to six compressors on the 5½ by 20-inch high pressure side. Here the gas is compressed to 750 pounds per square inch and delivered direct to a 6-inch diameter discharge header connected with the field distributing lines. These lines deliver the gas direct to the well head connections where it is used to produce the well.

The fluid from each well is produced into oil and gas separators and the gas returned directly through 12-inch wet gas system to the scrubbers and the compressors thus completing the circuit of the gas.

The plant is so designed as to permit the removal of casinghead gasoline that is produced during the compression operation and this gasoline is accumulated in tanks and storage equipment so arranged that the natural gasoline can be delivered to larger gasoline plants for stabilization.

Clearance Pockets

One novel feature that makes this plant very flexible in operation is the use of clearance pockets on the compression cylinders. These pockets consist of two types. One type is of the constant clearance design for one intake condition only. The other type, the one used on the Clark Brothers Co. compressors in this plant, is an adjustable pocket that is mounted either at the cylinder head or side and consists of a cast iron or steel vertical cylinder provided with inside piston. This piston can be adjusted to any desired position by the turning of a hand-controlled valve wheel. As the piston is raised or lowered the clearance for the cylinder is varied to suit the difference in intake gas pressure which on turn effects the volume of the gas coming into the compression cylinder.

The compressors are so designed that they can take gas in the low pressure cylinders at any pressure from 10 to 30 pounds and compress it without overload on the power end of the compressor to 70 pounds. Any cylinder provided with this type of clearance pocket can be operated at high efficiency over a wide range of intake and discharge pressures and give the maximum gas delivery without loss of power. This permits the use of larger cylinders than normal and eliminates the necessity of making changes of cylinders to take care of variations of operating conditions that may develop later.

The oiling system of the compressor units is a full forced feed type with the crankshaft drilled to provide oil for the main bearings and pin bearings by force feed separate lines. All rods are packed with metallic packing which is standard equipment with Clark Brothers Co. compressors.

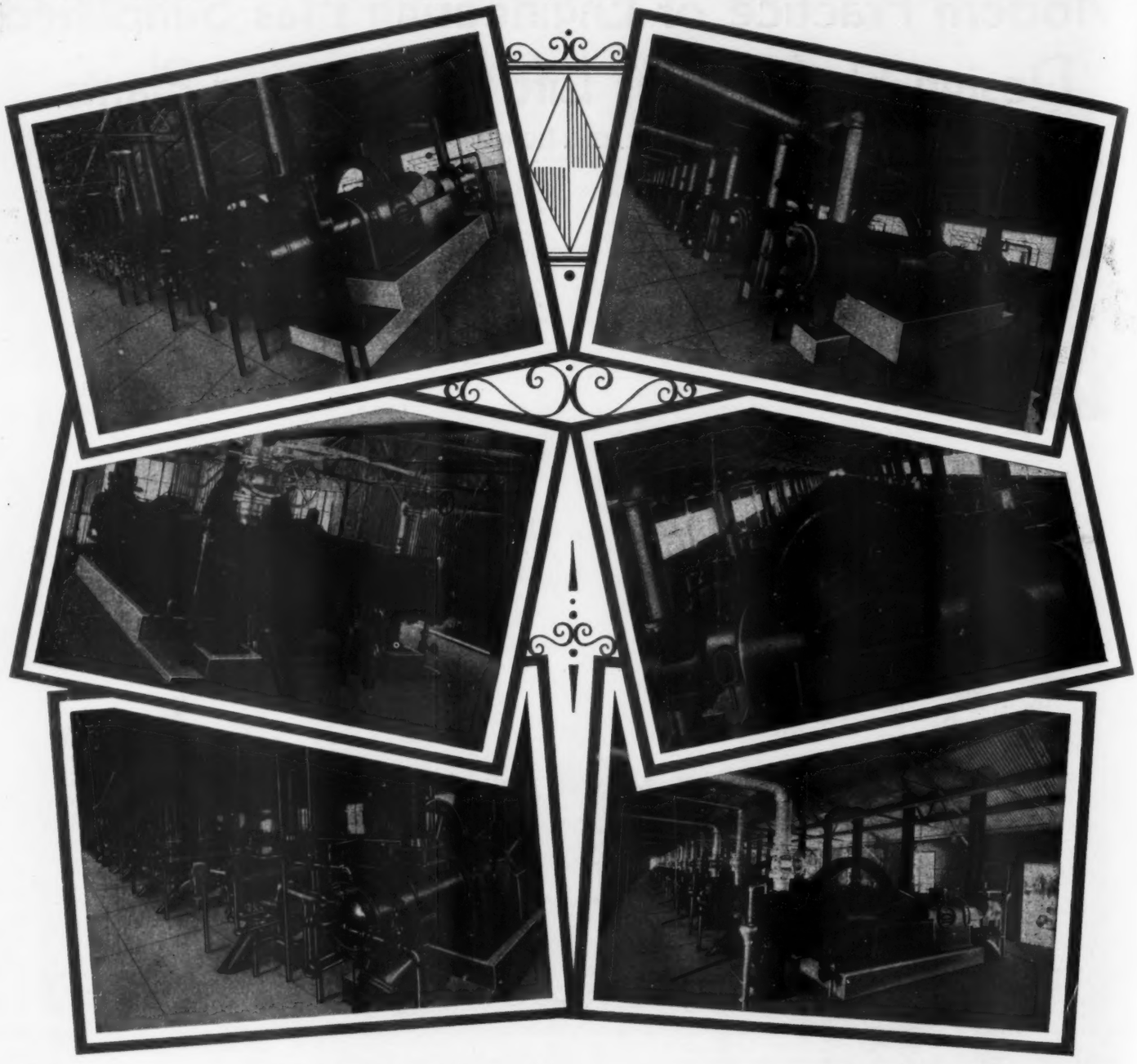
The power cylinders are of the inverted type head exhaust. They are specially designed to eliminate any hot spots in cylinder walls or head.

The power cylinder's exhaust is water cooled to a point 2 feet above the cylinder head and above that point the exhaust pipe is air cooled. This eliminates a lot of heat from the engine room. The exhaust pipes for the spent gas from the power cylinders are each 12-inch diameter by 21 feet high and are provided with mufflers at the upper end. The exhaust pipes are all set vertically and so designed that there is very little back pressure exerted against the power cylinder piston.

The engines are of the two-cycle design and embody the Super-2 Clark Brothers Co. principle. This type of design lowers the gas consumption to a par with good four-cycle gas engine performance and at the same time eliminates much of the complicated mechanism found in four-cycle engine design. The oil consumption of these units is low due to the proper design of lubricating system and cooling of cylinders.

In laying out the design for this plant care was taken to make the size of all

FOR GASLIFT SERVICE AND GASOLINE RECOVERY



Now 26,000 h. p. of CLARKS at Oklahoma City

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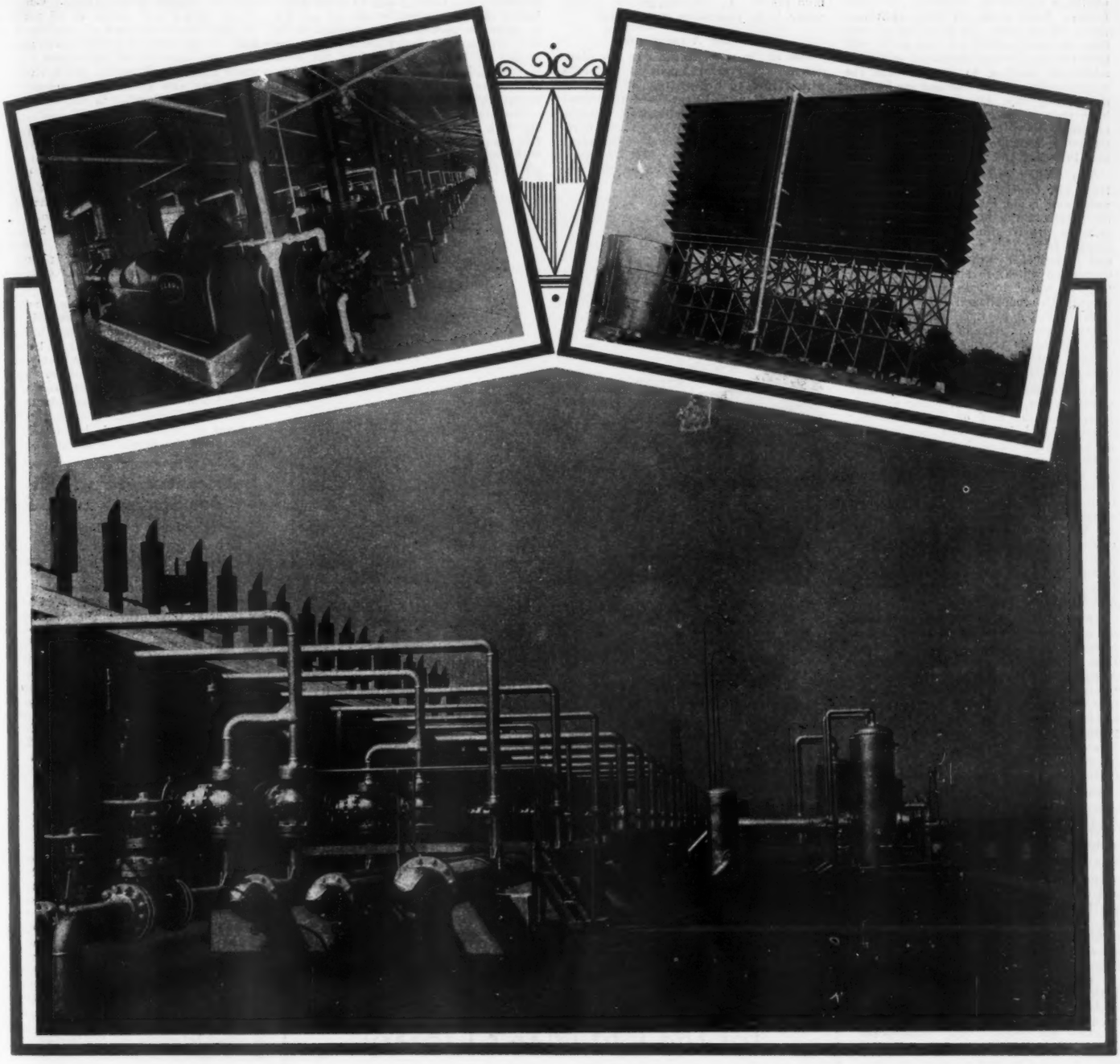


View showing exterior and interior of the new 15,000,000-foot Gas-lift plant of the Wirt Franklin Petroleum Corporation, Oklahoma City field. This plant was designed for maximum operating pressures of 1500 pounds and it embodies all of the latest improvements in gas-lift practice.

Designed and constructed by

J. F. PRITCHARD CO.

Contracting Engineers

528-32 Dwight Building, Kansas City, Missouri

439 Philcade Bldg., Tulsa, Oklahoma.

auxiliary equipment sufficient to accommodate from three to five additional units. These units can be added at any time at small additional cost as it will only require the installation of sufficient additional building to accommodate the extra machines, with fuel and gas headers and cooling coils. All of the other details have been taken care of and it is only necessary to place the units upon their respective concrete foundations and connect to intake and discharge headers.

The cooling system is of the gravity type. The cooling tower is built of redwood and made high enough to permit the water in the basin of the tower to flow by gravity into a 1,600-bbl. steel storage tank. This tank is 24 feet high and is provided with a 4-inch overflow connection which provided ample pressure for the water to pass from the tank through Griscom-Russell closed type gas coolers located at the discharge of the first and second stage of the compressors. This system is provided with by-passes so that water can be sent direct to the engine jackets if desired.

A novel feature of this cooling water system is the use of rain water accumulated from the roof of the compressor house. This building, 120 feet long by 32 feet wide with pitched roof has about 4,000 square feet of area and by providing gutters along the eaves rain water is run into the sump at the west end of the building and used in the cooling system. If make-up water is needed it can be secured in this way during a rain storm, or if no additional water is needed by-passes are provided from the spouts leading from the gutters to the sump so that the water can be run to the sewer and away from the grounds.

The cycle of the cooling water is from the tank to the coolers on the low and intermediate discharge of the compressor then through the engine and compression jackets. The temperature of the inlet water is kept at from 90° to 95° F. summer and winter with the temperature of the outlet water from the compressor and power cylinders never exceeding 110° F. at any time. This creates an ideal water temperature for cooling water for good engine operations.

The jacket water gravitates to a large sump and is picked up by a double suction single-stage centrifugal pump direct connected to a Terry gas turbine. The turbine operates on dry gas at about 150 pounds per square inch throttle pressure and against 20 pounds back pressure. It has been estimated that the quantity of gas needed to operate the Terry gas turbines is approximately the amount required for the power cylinders of the compressors and as they require this fuel gas delivered at from 15 to 20 pounds intake pressure the whole system is worked out most conveniently. After the gas at 150 pounds pressure has been used to drive the turbines that operate the centrifugal pumps handling the cooling water it passes on to the power cylinders of the compressors and is used there for fuel.

The discharge of the pumps is designed for a maximum head of 75 feet. This puts the water to the top of the cooling tower in nice shape and it is discharged there or it can be by-passed and permitted to escape into the tower at two other points lower down. This arrangement permits the temperature of the water in the tower to be controlled to meet climatic conditions.

As there are wide ranges in atmospheric temperatures during the year and as it is very desirable to maintain a temperature of from 90° to 95° F. for the intake cooling water to the units with the discharge temperature of not to exceed 110° F. the system has been so arranged as to permit water to be by-passed direct from the discharge lines from the compressor units to make-up water lines leading to the jackets to keep the cold water of the winter at the desired temperatures. This mingling of discharge water from the engine jackets with the cooled water from the water towers permits the 90° F. temperature for cooling water to be constantly maintained.

Cylinder Arrangement

One of the novel features of this plant design is the arrangement of the units with regard to the position of the compressor cylinders. In the plant units from No. 1 to No. 6 have compression cylinders 8½ and 16-inch diameter. These units are located in the west end of the plant and next to them to the east are three units, No. 7 to No. 9 inclusive, that are equipped with 5½ and 16-inch compression cylinders. This accounts for 9 of the 12 units and the remaining three, No. 10 to No. 12 inclusive, are equipped with 5½ and 8½-inch diameter cylinders.

By this arrangements if any one unit is shut down the full capacity of the compressor plant is only reduced by one-sixteenth to one-ninth. Each unit has sufficient power by slightly overloading to permit the remainder of the plant to continue to deliver maximum capacity during a shut down period. This type of cylinder arrangement will eliminate difficulties that might occur under other conditions because of wide variations in intake pressures when one unit goes down. This sudden change in intake conditions when one unit shuts down may cause several other units to shut down before the plant operator can get around to make the necessary adjustments. With this system of cylinder arrangement installed in the Theimer plant the load is automatically equalized and the probabilities of other units shutting down unexpectedly is reduced materially.

The piping for this plant has been laid out with this particular feature in mind. The compression cylinders are constructed with built-in by-pass to eliminate complicated pipe lines to take care of starting up units without load. All engines are also equipped with built-in indicator motions so that any unit may be easily tested at any time to determine its performance.

A unique feature has been added to this plant by welding suitable lugs to the 12-inch gas exhaust pipes at the power end of each unit to provide a means for erecting a portable crane of sufficient capacity to accommodate a chain hoist for use in removing cylinder heads or other parts on the power end of the unit.

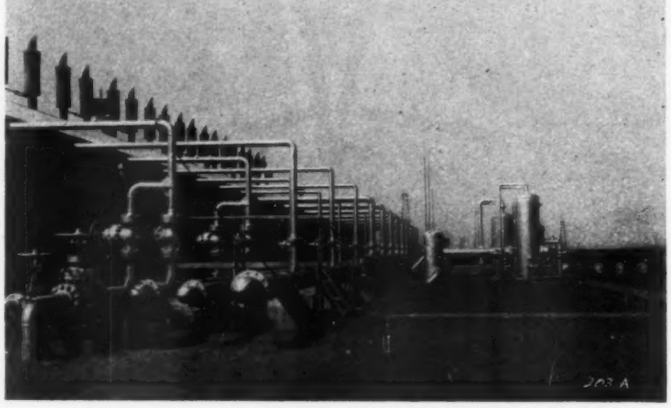
General Appearance

Pictures accompanying this article will give the reader a good idea of the general appearance of this plant. Aluminum paint has been used freely on all outside piping and fittings. Concrete walks permit easy access to all parts of the grounds in all kinds of weather. Very little of the piping is buried in the ground and any check up of operations can be made quickly and easily. All gas coolers are above the ground and conveniently located. A small office is provided in the plant for the superintendent.

A sump pit has been provided to accommodate the placing of a centrifugal pump sufficiently low so that the water from the sump pit will gravitate to the pump. This permits of convenient means for handling all water around the plant through the central water system.

Another innovation that has been incorporated in this building not common to most gas lift compressor plants is a built-in toilet and lavatory connected with a sewer system.

With the completion of this plant the Clark Brothers Co. has installed over 26,000 horsepower of compressor units in the Oklahoma City Field. It is believed that the operation efficiency of the unit on the Wirt Franklin Petroleum Corp.'s B. J. Theimer lease will lead to the installation of many additional plants and certainly indicates quite clearly the vast amount of progress made in gas lift stations since the Seminole days.



Piping system and headers at compressor plant of Wirt Franklin Petroleum Corp.'s Theimer lease, Oklahoma City field

Lubricants and Fuel Oils Are Stronger in the East

(Continued from Page 21)

of these cut price operators, forcing them to sell their products at the prices of their competitors in effect means they will be forced out of business. Many are meeting the situation by openly or secretly reducing their prices. The Government has taken cognizance of this situation by asking consumers not to buy from these stations. The latter plan is not adequate, according to salesmanagers of large distributors and conditions are rapidly reaching a crisis. This is one of the reasons advanced as to why the Government should adopt price fixing in the oil industry to include gasoline retail prices. There are objectors to this proposal on the grounds that it would be impossible to police the country so that price cutting in gasoline sales could be avoided.

Some salesmanagers say the only remedy is for the larger companies to meet the cut prices. They feel that with a stabilized crude oil market the main cause of the underselling would be ended in a short time and the policy of meeting all prices would soon minimize the effect of the cut price operations in general markets. This policy, made effective previous to the advent of the NRA program, is said to have materially improved marketing conditions at many points. The foregoing briefly outlines the development which is most widely discussed in this territory at this time. Those in touch with the market agree that this problem must be solved before the gasoline markets can be permanently improved.

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for the Oil Man's Library

"PETROLEUM DICTIONARY"

While Hollis P. Porter, himself a petroleum engineer, was delivering a series of lectures before students of the school of petroleum engineering in the University of Tulsa he found frequent need for a vocabulary of terms peculiar to the oil industry. None was in existence, so he set out to make one. Systematically he began to collect material, drawing upon his own rich fund of knowledge and upon various other sources, and setting down a concise definition or explanation of each addition to his collection.

The result of Mr. Porter's undertaking is a clothbound book of 234 pages, with the title "Petroleum Dictionary for Office, Field and Factory." It is the most complete work of its kind yet produced. Here the reader discovers that when a driller finishes a well barefooted he does not discard shoes and socks. A cherry-picker picks no cherries. Puking has nothing to do with seasickness or other nausea. A thief is not somebody who steals. A cracker is not something to eat. A rat-hole never is traversed by a rat.

Seventy-four years of producing, refining and transporting of oil has developed hundreds of expressions which are meaningless to ears unfamiliar with the jargon of the derrick, the refinery and the pipe line. It has produced many new technical terms or given new meanings to old ones. The "Petroleum Dictionary" records and defines about 3,000 of these expressions. Its value to the oil man and to any other person who desires to familiarize himself with the language of oil is obvious.

"Petroleum Dictionary" may be purchased through the Book Department of The Oil and Gas Journal at the regular postpaid price of $3. Check or money order for this sum must be received before the book can be mailed.

SHELL TO HAVE NEW QUARTERS

NEW YORK, Oct. 9.—Consolidating its New York offices the Shell Union Oil Corp. has taken nearly five entire floors in the 70-story RCA Building in Rockefeller Center. The deal involves more than 100,000 square feet of office space at an aggregate rental in excess of $5,500,000. The move brings to midtown Manhattan the parent company, together with its subsidiaries and associates, with about 500 employes. Among the associated companies affected are the Shell Eastern Petroleum Products, Inc., the company's marketing subsidiary; the Asiatic Petroleum Corp., the Anglo-Mexican Petroleum Co. and the Colon Oil Corp. The company plans to occupy its new quarters in December after alterations have been made.

A. S. HIGDON DIES

Arthur S. Higdon, 42 years old, foreman of the electrical department of the Texas Co. refinery, Tulsa, died suddenly of heart disease while conversing with members of the family.

Mid-Continent Refinery Runs Reflect Fall Dip in Demand

(Continued from Page 12)

KANSAS

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
Altitude Petroleum Corp., Chanute	5,000	(†)	(†)
Altitude Petroleum Corp., Kansas City, Mo.	3,000	600	600
Barnsdall Refineries, Inc., Wichita	4,000	2,000	2,000
Derby Oil Co., Wichita	8,000	5,000	5,000
Dickey Refining Co., McPherson	5,000	1,000	1,000
Eldorado Refining Co., Eldorado	4,500	3,000	3,000
Falcon Refining Co., Inc., Great Bend	700	450	450
Globe Oil & Refining Co., McPherson	10,000	8,000	8,500
Golden Rule Refining Co., Wichita	1,500	900	900
Kanotex Refining Co., Arkansas City	12,000	7,500	8,000
National Refining Co., Coffeyville	6,500	5,000	5,000
Phillips Petroleum Co., Kansas City	15,000	10,000	8,500
Shell Petroleum Corp., Arkansas City	22,000	18,000	18,000
Sinclair Refining Co., Coffeyville	12,000	9,000	10,000
Sinclair Refining Co., Argentine	9,500	3,000	5,000
Skelly Oil Co., Eldorado	23,000	15,000	15,000
Standard Oil Co. of Kansas, Neodesha	20,000	5,000	5,000
Sunflower Refining Corp., Hutchinson	2,000	(*)	(*)
Vickers Petroleum Co., Potwin	3,500	2,800	3,000
White Eagle Refining Co., Augusta	16,000	13,500	13,590
Total	183,200	109,750	112,450

*Shut down. †Cracking only.

ARKANSAS

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
Berry Asphalt Co., Waterloo	2,000	500	500
Henry H. Cross Co., Smackover	6,000	3,000	3,000
Lion Oil Refining Co., El Dorado	12,000	6,500	8,000
Macmillan Petroleum Products Co., Norphlet	2,000	1,600	1,600
Ouachita Valley Refining Co., El Dorado	1,500	1,200	1,200
Root Refining Co., El Dorado	10,000	4,500	4,500
Simms Oil Co., Smackover	3,000	2,200	2,500
Stephens Refining Co., Stephens	750	450	450
Total	37,250	19,950	21,750

NORTH LOUISIANA

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
Bayou State Refining Co., Houston	750	200	200
Cedar Grove Refining Co., Shreveport	1,000	750	750
Louisiana Oil Refining Co., Shreveport, Bossier	19,000	17,000	17,500
Spartan Refining Co., Shreveport	10,000	5,500	5,500
Stanolind Oil & Gas Co., Superior	3,500	2,000	2,000
Texas Co., Shreveport	7,000	(*)	(*)
Shreveport Refining Co., Shreveport	500	450	450
Total	41,750	25,900	26,400

*Shut down.

WEST TEXAS

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
Active Oil Corp., Arno	1,500	(*)	(*)
Aero Refining Co., Pecos Valley	225	(*)	(*)
Bee Oil & Refining Co., Pettus	500	280	...
Capital Refining Co., Luling	2,500	180	200
Coltex Refining Co., Colorado	10,000	8,000	7,000
Concho Refining Co., San Angelo	500	100	100
Cosden Oil Co., Big Spring	12,000	1,200	4,000
Pentex Refining Co., Echo	400	50	50
Grayburg Oil Co., San Antonio	6,000	(*)	(*)
Gulf Refining Co., Sweetwater	5,000	4,000	4,000
Howard County Refining Co., Big Spring	1,500	650	300
Humble Oil & Refining Co., San Antonio	5,000	2,750	2,875
Magnolia Petroleum Co., Luling	7,000	4,600	4,500
McNutt Refining Co., El Paso	2,000	700	700
Marathon Oil Co., Del Rio	5,000	(*)	(*)
Moutray Refining Co., Hawley	600	300	300
Misko Refineries, Inc., Mirando City	2,500	1,200	1,200
Nolting Refining Co., Sweetwater	1,000	200	200
Octane Oil Refining Co., Baird	1,400	1,300	1,200
Paramount Refining Co., San Angelo	2,000	200	200
Pasotex Petroleum Co., El Paso	14,000	7,100	(*)
Phoenix Refining Co., Pettus	800	600	400
Phoenix Refining Co., Laredo	600	(*)	300
Pioneer Oil & Refining Co., Somerset	1,500	850	800
Price Refining Co., San Antonio	500	190	...
Shamrock Oil & Gas Co., Lefors	1,200	500	(†)
Sinclair Refining Co., El Paso	2,500	900	2,500
Texas Co., San Antonio	3,000	3,000	1,500
Texas Co., El Paso	2,000	800	800
Texas Petroleum Products Co., Somerset	1,500	450	400
West Texas Refining Co., Pecos City	6,000	(*)	3,000
Wickett Petroleum Co., Wickett	2,500	400	400
Total	102,725	40,500	36,925

*Shut down. †Building.

EAST TEXAS

Company and location—	Daily capacity	Aver. daily runs— Oct.	Sept.
Alamo Refining Co., Camps Switch	2,500	320	360
Arp Refining Co., Arp	2,000	550	600
Arpana Refining Co., Arp	3,000	3,100	1,940
Arrow Refining & Producing Co., Overton	2,500	1,440	1,360
Beacon Oil & Refining Co., Henderson	4,500	2,890	3,000
Big Five Refining Co., Gladewater	100	(*)	95
Canyon Refining Co., Kilgore	500	150	400
Carnation Refining Corp., Gladewater	300	360	250
Century Refining Co., Friars Switch	2,000	1,570	840
Chief Refining Co., Gladewater	1,500	1,035	1,100
Cook (R. X.), Gladewater	200	(*)	50
Danciger Refineries, Inc., Longview	10,000	6,000	7,000
Dutch Rose Refining Co., Gladewater	300	150	250
East Texas Refining Co., Longview	10,000	8,500	8,350
Foshee Refining Co., Gladewater	1,000	450	800
Gladetex Refining Co., Gladewater	500	100	100
Gilliland Refining Co., Gladewater	1,500	320	1,100
Gilmer Refining Co., Gilmer	500	(*)	(*)
Godlin Refining Co., Gladewater	500	25	...
Goodson-Gentry Refining Co., Gladewater	500	(*)	90
Henderson Refining Co., Henderson	12,000	(*)	(*)
Jack Refining Co., Gladewater	350	(*)	(*)
Johnsonville Refining Co., Omega	200	(*)	(*)
Keller Refining Co., Kilgore	1,000	(*)	(*)
Kilgore Refining Co., Kilgore	3,000	1,500	(*)
Lake Refining Co., Gladewater	1,000	350	800
Locke Refining Co., Gladewater	900	700	800
Lotus Refining Co., Gladewater	100	(*)	50
Modern Refining Corp., Gladewater	1,500	(*)	750
O. K. Refining Co., Kilgore	1,000	(*)	(*)
Oil Refineries, Inc., Overton	4,000	3,200	3,400
Overton Refining Co., Overton	3,500	2,500	2,100
Panama Refining Co., Kilgore	250	535	400
Pennant Refining Co., Kilgore	1,000	700	700
Recla Refining Co., Turnerstown	200	(*)	80
Rockett Refining Co., Kilgore	200	(*)	(*)
Rusk Oil & Refining Co., Overton	3,000	1,500	1,800
Roland Refining Co., Arp	250	(*)	(*)
Shoreline Refining Co., Kilgore	500	60	(*)
Sinclair Refining Co., Camp Switch	5,000	2,000	2,000
Smith & Maxey Refining Co., Kilgore	150	(*)	(*)
Solar Refining Co., Overton	3,000	(†)	(†)
Southern Refining Co., Reeds Switch	2,500	(*)	700
Southport Refining Co., Kilgore	1,000	1,250	950
Supreme Refining Co., Gladewater	300	95	150
Taylor Refining Co., Tyler	15,000	5,800	8,000
Texas Oil Products Co., Gladewater	2,000	890	1,800
Texas Refining Co., Kilgore	500	360	300
Trico Refining Co., Turnerstown	200	(*)	(*)
Trinity Refining Co., Gladewater	1,500	1,100	1,250
Trio Refining Co., Arp	700	635	...
Tyler Refining Co., Arp	1,500	1,470	1,300
Union Refining Co., Camps Switch	3,000	2,000	2,000
Upshur Refining Co., Gladewater	500	480	450
Total	114,700	54,105	56,575

*Shut down. †Cracking only.

Hear Interesting Papers at Meeting in Dallas, Tex.

(Continued from Page 10)

Oklahoma City, presented a paper entitled "A New Method of Measuring Vented Gas," based upon their experiences in securing data upon the flow of gas wells in the Oklahoma City Field. These data are of particular value for use in connection with rulings upon gas-oil ratio for wells in that field. Their research work was largely devoted to the determination of methods of using the pitot tube for wells of high pressure and volume such as encountered in Oklahoma City and they found that the pitot tube can be used safely if the proper efficiency factors are applied to formula already available.

H. B. Hill, petroleum engineer, Dallas office, U. S. Bureau of Mines, presented a very interesting paper upon his work in the Oklahoma City Field in estimating gas reserves. This paper was based upon the information published in U. S. Bureau of Mines Report of Investigations 3,217, "Estimate of the Gas Reserves of the Oklahoma City Oil Field," published in July of this year.

The last paper on the natural gas program was presented by Ben E. Lindsly, senior petroleum engineer, U. S. Bureau of Mines, Bartlesville, Okla., and dealing with "Effect of Gas Withdrawal Upon Reservoir Fluids."

This is a very interesting paper outlining the work done by Mr. Lindsly and other Bureau of Mines engineers in various fields in determining the changes that take place in underground reservoirs as oil and gas is withdrawn. Investigations and reports have been made covering Kettleman Hills, East Texas and Oklahoma City and the Bureau of Mines now has Mr. Lindsly in the Oklahoma City Field laboratory doing further work along these lines in that field and in the new field near Crescent, Okla.

General Sessions

The opening session on Friday was devoted to papers by Morris Muskat and R. D. Wyckoff, Gulf Research & Development Corp., Pittsburgh, Pa., upon "A Theoretical Analysis of Water-Flooding Networks." This paper has been published as T. P. No. 507 by the A.I.M.E. and is available to members on request of the New York City office.

The second paper was entitled "Characteristics of Edgewater Encroachment in California Oil Fields" by V. H. Wilheim, E. L. Davis and W. A. Clark, respectively chief petroleum engineer, production engineer and petroleum engineer for the Texas Co. (California), Los Angeles, Calif. In the absence of any of the authors it was presented by Dr. J. B. Umpleby, of Norman, Okla.

"Some Theoretical and Practical Aspects of Oil Well Acid Treatment" by M. E. Chapman, engineer, Gypsy Oil Co., Tulsa, was the last paper presented during the Friday morning meeting. This paper brought about considerable discussion of this subject. The interest always displayed when acid treatment of lime wells is discussed indicates quite clearly that the industry appreciates the advantages to be gained by the application of this method to old wells and the results reported seem to indicate that in most instances the expense is fully justified.

The second paper on the Saturday morning program was the presentation of data covering "Recent Changes in Reservoir Pressure Conditions in the East Texas Field" prepared by George L. Nye, engineer, Tide Water Oil Co., Kilgore, Tex., and placed before the meeting by C. E. Reistle, Jr., engineer for the associated oil companies of the East Texas Field. Several graphs were displayed showing the changes in bottom hole pressure that have taken place since the early days of the field. On the same diagrams rates of production were also plotted.

The composite data chart showed that there has been some increase in bottom hole pressure since the field has been produced at less than the 750,000-bbl. per day rate. The lowest average pressure for the field recorded was 1,222 pounds and this increased by September 29 to about 1,243 pounds.

There was discussion as to whether this rate of increase will be maintained if the withdrawals remain about as they now are or if it will be only a temporary adjustment of pressures and will later again show decline even with normal daily withdrawals. Opinions differ and no decision was reached on this subject. The work that has been and is still being done by the joint engineering council of the East Texas Field is most valuable and is furnishing information that is most helpful in planning future operating methods.

The dinner and smoker held Friday evening was addressed by Dr. F. M. Becket, president of the Institute, who told his audience briefly some of the things that have been accomplished in the manufacture and use of ferro alloy metals and their uses in various industries including petroleum. A. B. Parsons, secretary of the Institute, also made a brief talk upon the society's affairs and activities.

Some Practical Aspects of Acid Treatment of Wells

(Continued from Page 10)

permitted acid to dissolve mill scale without affecting the iron and steel.

A number of inhibiting substances have been studied. There is no definite relation between chemical properties and inhibitory value. Some inhibitors are colloidal and tests show that their inhibitive value is increased proportionately to the colloid concentration. Some substances exert inhibitory action when only very small amounts are present, suggesting that the effect is catalytic in nature.

The mechanism of inhibitive action is very little understood. Several explanations have been advanced for the action of inhibitors. One theory is that the inhibitor forms some sort of film over the cathode which prevents the ready evolution of hydrogen. Another theory is that iron immersed in acid goes into solution at the anode areas, forming iron ions in solution and depositing an equivalent amount of hydrogen ions at the cathodic areas. These cathodic areas are assumed to occur principally in the grain boundaries of the crystals in steel, or at the interface of slag and iron in wrought iron. Most inhibitors are either organic bases or positively charged colloids and when these are present they travel to the cathode areas with the hydrogen. When the positively charged particles of the inhibitor are discharged at the cathode, they cannot escape by gaseous evolution, and accordingly are adsorbed on

the surface, building up a protective layer.

Procedure

The concentration and amount of acid used varies with different wells. In Kansas and Oklahoma it is common practice to use 1,000-gallon charges, consisting of 500 gallons of 18° Be. acid (approximately 28 per cent HCl) and 500 gallons of water. One of these 1,000-gallon charges will dissolve approximately 10 cubic feet of calcium carbonate.

Acidizing methods vary in different areas. The following discussion outlines the usual practice in Oklahoma and Kansas. Oil is first pumped down tubing until casing is filled. Acid is then introduced into well through the tubing and oil is bled, if necessary, from the casing until acid reaches bottom of hole. Casinghead is then shut in. Ordinarily a vacuum is created in tubing when acid begins to rapidly enter the formation. Consequently the remaining acid is quickly siphoned into the tubing. After all acid has been introduced into the well, an oil load of sufficient size is pumped into the tubing in order to force all acid out of tubing.

The procedure outlined above cannot be followed in all wells. If oil enters the formation readily, casing cannot always be filled with oil, in which case usually 100 or 125 bbls. of oil are introduced into the well. With the exception of bleeding off oil from casing, the operation is then the same as that described for wells which can be filled with oil.

During the operation the tubing and casing pressures at well head are usually different, particularly at the time the acid encounters the limestone. Observed casing pressures have been 350 pounds or higher, while vacuum is registered on tubing. This variance of observed pressures is due to differences in specific gravities of fluids in casing and tubing.

The specific gravity of the acid solution is approximately 1.08 while that of 45 degree oil is 0.8. A 3,000-foot column of oil would create a pressure of about 1,040 pounds per square inch, and a 3,000-foot column of acid would create 1,400 pounds per square inch pressure, a difference of 360 pounds. In addition there would probably be an increase of pressure at the casinghead because of the production of CO_2 resulting from action of acid on limestone.

Results of Acidizing

Immediate results of acidizing vary with formations and wells in the same formation. Occasionally acid treatment does not increase rate of production. Usually, however, wells respond with a substantial rate increase following treatment. In the Seminole area a Hunton well which was producing 3 bbls. per day increased to 95 bbls. daily after being acidized. This is an increase of 92 bbls., or 3,067 per cent. We have had too little experience to justify a definite statement regarding the effect acidizing has on ultimate recovery.

Increase in daily production does not necessarily mean an increase in ultimate production. Although the daily production of this well increased following acid treatment, production after acidizing dropped rapidly. According to the rate cumulative decline curve, the ultimate recovery of this well is not increased by acidizing.

Acidizing was originally applied to small wells. The practice has been extended now to cover all types of wells. In some cases, acidizing is a part of the completion program of a well.

There are a number of problems which now beset acid treatment of wells and additional study of physical and chemical conditions associated with acidizing is necessary. However, as experience is gained and technique improved, acid treatment of wells will probably be regular practice in the oil industry.

VISCOUNT COWDRAY DIES

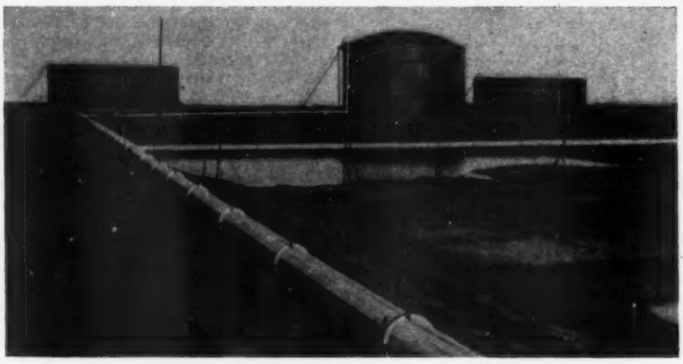
Weetman Harold Miller Pearson, second Viscount Cowdray, one of the founders of the Amerada Corp., died at London, October 5, aged 51.

Reducing Evaporation and Corrosion Losses

(Continued from Page 8)

this way all excess vapor created in any tank in the system gathers in the steel balloon.

In actual practice no set of working tanks are ever all empty or filled at the same time. Part of them are filled and part are filling, while others will be emptying or completely emptied. This condition will vary the ratio of gas to oil space in each tank through the complete range of possible changes. This also provides a means for transferring vapor from tank to tank and from tanks to the steel balloon or vice versa so that the vapor in the system is quite mobile and finds its way to the points of lowest pressures promptly. There is no great differential in pressure set up between different parts of the system and with the cone type decks a pressure of about



Gathering system for gas and vapors installed in the tank farm of the Globe Refining Co., McPherson, Kansas

0.8 ounce per square inch is built up before the vents on the tank will open. The vents on the steel balloon are set to operate at about half this pressure or 0.43 ounce pressure per square inch.

There is one function performed daily by the steel balloon. The expanding gas during the daylight period will partially fill the balloon and at night as the metal cools the gas contracts and flows out of the steel balloon to the individual tanks in the system. This transfer is due to the setting up of differential pressures and is assisted by the flexible character of the material used in making the balloon.

A system of drains has been provided to conduct rain water or melting snow from the deck. It has been found that this washing action of the rain will completely remove all accumulations of dirt and dust that may have occurred on the tank roof between rainstorms.

The water drains are large enough and so designed as to prevent freezing water from damaging them. The drains are closed by a fluid seal in such a manner that there is no chance for gas to make its escape through the drainage pipes.

Part of the design includes placing weights on the deck to assist in regulating movement and in keeping the deck plates in large waves at all times.

Corrosion

If metal can be kept dry there will be practically no corrosion. This fact has been known for a long time but the problem has been to use metal in tanks and pipe lines and so forth without bringing them in contact with moisture. If water is not actually introduced into the system in a free form it will be formed from precipitation of water vapors in the atmosphere or by the combination of elements to produce H_2O.

Tank corrosion has been one of the worst forms of this trouble to combat. Large and small steel tanks have rusted out in relatively short time and even under the protection of good protective coatings have failed in a few years. The West Texas limestone field area has been noted for the rapidity of corrosion due to the fact that the gas produced with the oil carried appreciable proportions of H_2S, hydrogen sulphide.

When moisture and hydrogen sulphide gas were combined the action on iron or steel was very rapid. Great slabs of iron sulphide scale are formed on the under side of the tank decks and on sides and when these fall and accumulate on the tank bottom accelerated corrosion results. It is very evident that this iron sulphide is the direct result of combination of water vapor deposited on the tank deck with iron and hydrogen sulphide. It is therefore an advantage to keep water moisture from being precipitated and this can best be done by keeping fresh, moist air out of the vapor system.

In the tank farm of the Atlantic Oil Producing Co., Midland, Tex., there are thirty-five 80,000-bbl. capacity steel tanks equipped with Wiggins type breather roofs that have been in constant use for six years handling West Texas sour oils that are noted for their corrision effects. These breather roofs tend to keep the amount of fresh air admitted to the tanks at a minimum and in this way the amount of moisture accumulating on the under side of the deck has been very small.

Recently several of these tanks were examined to determine the condition of the breather roofs. Scaffolding was erected inside the tanks and corrosion experts went into them and made close examination of the under side of the roofs. They report that there is no pitting or corrosion and this is accounted for by the action of the breather roof system which has maintained an atmosphere of gas over the oil at all times. As fresh air has not been admitted in any appreciable quantities there has been no opportunity for water vapors to form and the combination of hydrogen sulphide and moisture has not occurred, so corrosion never started.

The demonstration of this theory has been so conclusive that engineers for the Reagan County Crude Oil Purchasing Co. were interested in the installation of a steel balloon and breather roof system. This company handles practically all the oil produced in the Big Lake Field. Estimates made by the engineers for the Purchasing Co. and by Mr. Wiggins show that such a system should pay for itself in about 18 months by reduction of evaporation losses and at the same time reduce corrosion very materially.

This system is now being installed and the steel balloon is 150 feet in diameter with side sheets 5 feet high and a capacity of 150,000 feet of gas when filled. The deck and bottom on this balloon is made of 14-gauge steel while the shell is made of No. 11 gauge steel. There are five 80,000-bbl. capacity steel tanks in the system fitted with breather roofs.

It has been estimated that this system will be so well balanced that no air will be admitted over the oil or into the steel balloon at any time. However, to make crtain that there is no oxygen present to start corrosion it is planned to install a small plant to manufacture CO_2, carbon dioxide, an inert gas that will fill the space within the tanks, balloon or gathering pipes that is not occupied by hydrocarbon gases or oil.

This carbon dioxide can be made in a simple burner and the water vapor will be either compressed or scrubbed out of it and the pure CO_2 gas fed into the system as needed. When the tanks are being filled for the first time and the steel balloon is taking its first load there will be some air in the system and to eliminate this and reduce later amounts of the atmosphere entering the system to a minimum the exhaust of the tanks and steel balloon will be to the air through a one-way valve. To replace vapors exhausted to the atmosphere carbon dioxide gas will be drawn in as needed.

This relatively new system of handling vapors in tanks promises to have a wide application to refinery, stock tank farms and pipe line systems. Keeping fresh air from mingling with the vapor or passing over the crude oils or petroleum products has long been the aim of operators and the Wiggins system of breather decks and steel balloons apparently is the answer to the problem. The results in West Texas will be watched with much interest.

Constitutional Questions Delay Price Fixing Policy

(Continued from Page 9)

interest, no distillate burner of sleeve type shall be sold or offered for sale that does not meet the following specifications:

"The burner top rings, top caps and sleeves shall have a thickness of not less than .026 inch and chromium content of not less than 16-18 per cent, or alloys of equivalent heat resistance.

"The burner sleeves shall have a height of 4 inches or more.

"Other construction and material specifications must comply with the Underwriters Laboratories requirements as specified in their code of April, 1932, and amendments to June 1, 1933.

"Distillate conversion burners (Class 4 A) must include all of the following component parts: Oil container and stand; hand control metering valve or valves; minimum of 6 feet of copper tubing with single burners, and 7 feet with multiple burners; suitable fittings; bases and supports; approved wicking; sleeves; top rings; caps and the necessary bolts and screws for proper installation.

"Quality of material, workmanship and packing must comply with the Underwriters Laboratories requirements as specified in their code of April, 1932, and amendments to June 1, 1933."

At the public hearing on said code duly held on August 21, 1933, no objection to said provision has been raised. However, in preparation of the final revision of said code for submission to the President, said provision was inadvertently omitted. In consequence the said code as approved did not contain said provision.

By letter of application dated September 29, 1933, the code authority for the oil burner industry, as duly constituted under Article 7 of said code as approved, has requested that said code as approved be amended by adding thereto, as a new Section 12 of Article 6 thereof, the following provision, hereinafter designated Provision A, which is substantially identical with the provision inadvertently omitted as aforesaid:

"The sale or offering for sale of any distillate burner of sleeve type that does not meet the aforesaid specifications is unfair competition; provided, however, that where a manufacturer of such equipment desires to manufacture a burner of this type, with other materials than those specified, or desires to use a different combination of parts than those specified, such manufacturer shall first apply to the code authority for permission to do so and he shall at the same time submit proof that the substitutions requested will offer to the consumer protection and service equivalent to that offered by a burner constructed as herein provided. The code authority will pass upon this petition. If denied, the applicant may apply to the administrator for permission and the decision of the administrator shall be final."

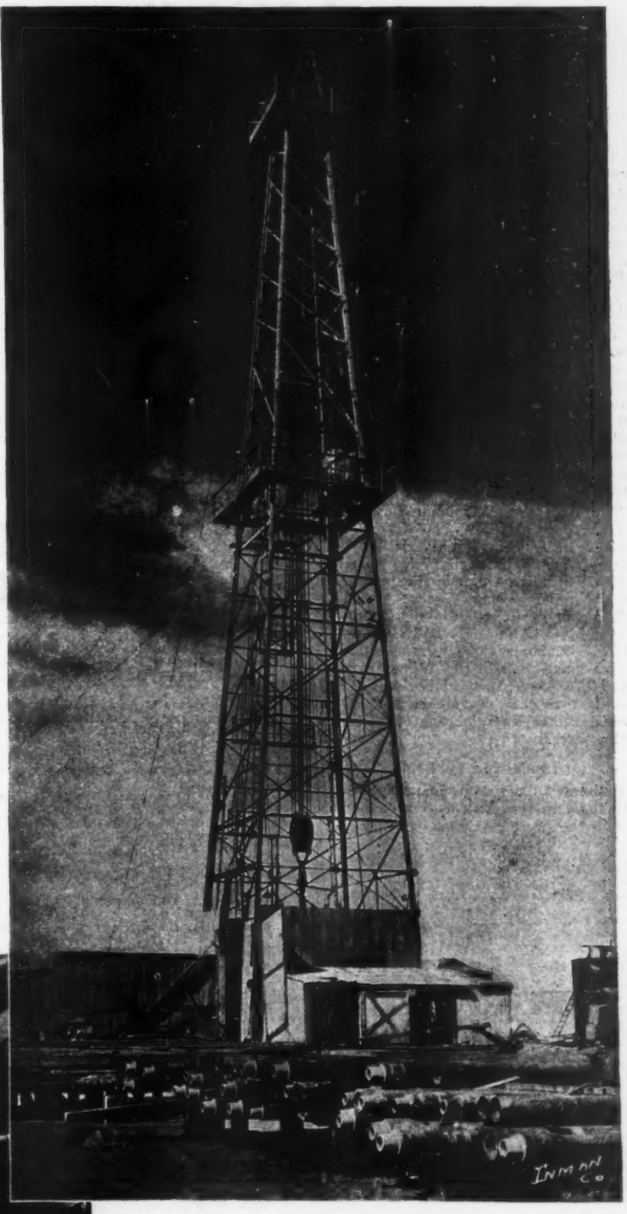
TIMKEN PERFORMANCE IS RECORD PERFORMANCE

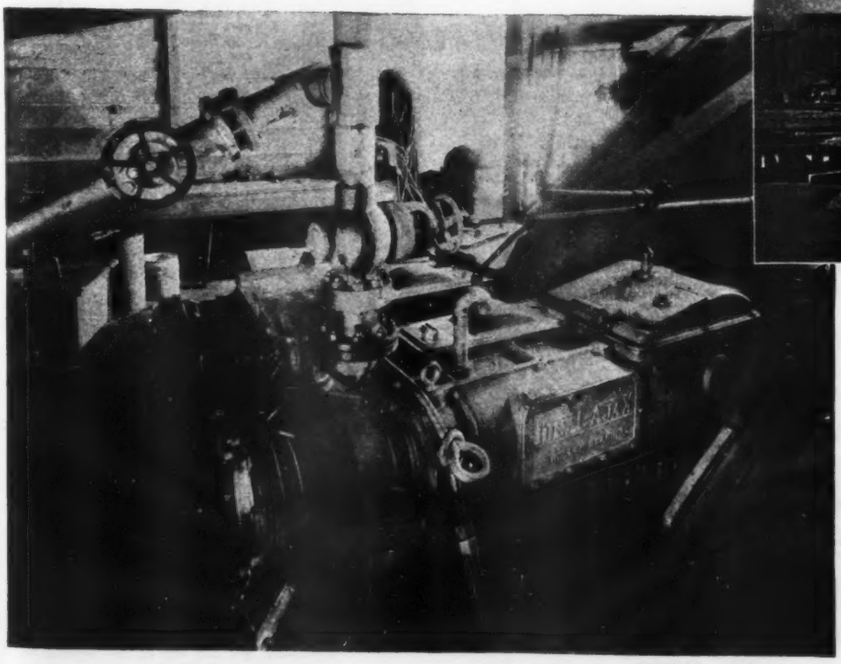
Whenever you hear of an outstanding achievement in the oil fields, ten to one you will find Timken Tapered Roller Bearings sharing the credit.

Records are not established every day, but Timkens' ability to deliver record-breaking service shows what can be expected of them under the less spectacular, but not less important average operating conditions.

No matter what type of new equipment you may be buying, any successful oil field operator will tell you that it pays—again and again—to buy Timken-equipped.

THE TIMKEN ROLLER BEARING CO., CANTON, O.





The No. 1 Lillis-Welsh well of the Kettleman Oil and Gas Company, California, which holds the world's record for depth—nearly 11,000 feet. Every foot of this well was drilled with an Ideal-Ajax 12″ x 12″ steam drilling engine with the crank shaft mounted on Timken Tapered Roller Bearings.

Whether you are drilling or pumping, Timken Bearing Equipped gas or steam engines will give you dependable, attention-free service at the lowest possible cost for operation and upkeep.

TIMKEN *Tapered Roller* BEARINGS

Oklahoma's Production Falls Below Allowable; Second Well in Crescent Pool Is Smaller

By JAMES McINTYRE

The second producing well in the Crescent Field in Logan County, Oklahoma, Carter Oil Co. and Gypsy Oil Co.'s No. 1 Walker in Section 33-17-4w, is not as large a producer as the same company's discovery well on the Miller farm, a half mile north of it. The new well made 1,673 bbls. in 19 hours, while the discovery well tested out over 5,700 bbls. in 24 hours.

The Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1, NE cor. Section 35-6-7, Sasakwa Townsite, Seminole County, flowed 819 bbls. in 24 hours from Wilcox sand at 4,044-57½ feet, the big production coming from the last 6½ feet. This well offsets the same company's big producer which acted in such an erratic manner about a month ago.

The Amerada Petroleum Corp.'s important test in C NW NW SW Section 12-13-6 in Lincoln County drilled on a seismograph high found Wilcox sand at 4,265-79 feet but the hole filled with salt water.

The important wildcat of Rapp and others in C E half NE SW Section 19-14-3w, Oklahoma County, appears to be only a small well in the Wilcox sand at 6,615-6,708 feet. It can build up a 1,000-pound pressure overnight and when opened makes several heads of oil and a little water.

Production by Pools

Estimated daily average production in Oklahoma in the week ending October 7, and in the preceding week follows:

	Oct. 7	Sept. 30
Allen	10,500	9,930
Bowlegs	12,210	10,550
Bristow-Slick	11,150	11,150
Healdton	10,000	10,000
Burbank	9,600	9,609
Lucien	9,270	7,645
Carr City	6,590	5,815
Cromwell	5,000	5,000
Earlsboro	11,410	10,130
East Earlsboro	16,300	14,490
South Earlsboro	1,610	1,510
Little River	17,400	14,500
East Little River	850	990
Oklahoma City	142,475	212,500
Seminole City	12,800	9,635
East Seminole	1,615	1,250
Searight	3,000	2,405
Maud	1,450	1,600
Mission	5,340	5,250
Cushing-Shamrock	13,000	13,900
St. Louis-Pearson	30,100	23,915
Tatums-Tussey	8,350	8,950
Sholem-Alechem	5,350	5,475
Other pools	133,410	132,380
Total Oklahoma	478,780	527,670

Production Less Than Allowable

The production of the first week under the NRA oil administration's new Oklahoma quota was below the allowable of 495,000 bbls. The estimate for the week is 478,780 bbls.

Three hundred and fifteen Wilcox sand wells in the Oklahoma City Field, which have taken potentials, are found to have fallen off an average of 36.8 per cent in oil and 47.1 per cent in gas since the April-May potentials.

Oil movement from leases in the Oklahoma City Field in September average 212,115 bbls. per day. The Stanolind Pipe Line Co. moved 1,403,881 bbls. during the month, and the Independent Pipe Line Co. (Phillips Petroleum Co.) was second with 1,040.974 bbls. Empire Pipe Line Co. ran 696 676 bbls.; Oklahoma Pipe Line Co., 680.215 bbls.; Globe Pipe Line Co., 544,989 bbls.; Indian Territory Illuminating Oil Co., 464,754 bbls. Those were the largest figures. The Sinclair Prairie Pipe Line Co. ran only 171,872 bbls. from the field during the month. The Continental Oil Co. is credited with 247,140 bbls. The total runs were 6,363,450 bbls.

The present day allowable runs from Oklahoma, 495,000 bbls. per day, are much below the demand for Oklahoma crude oil, and according to some buyers they are at a loss to know where they are to get enough oil to meet their requirements.

Dam Ready for the Rains

The Shell Petroleum Corp. has had a lake constructed in Township 20-3w to supply water for its rotary drilling operations. The lake is 300 acres in extent. It is a concrete dam, 54 feet high and 300 feet across, and an earth embankment extends the dam structure to 500 feet. One hundred men have been employed in the construction. When the dam is filled with water it will be stocked with fish and will serve as a recreation place for the employes of the Lucien Consolidated Oil Corp., which is made up of the numerous companies which own the block in the Lucien Pool, which appears to include nearly all the productive area in the field. There is a good rainfall in that part of Oklahoma and it is expected that the autumn rains will more than fill the dam.

Osage County

In the Osage Nation, the Indian Territory Illuminating Oil Co. and Palmer's No. 1, C NE NE NW Section 8-25-6, swabbed 35 bbls. in five hours. It showed 2½ bailers of water. This is a Bartlesville sand well, 2,786-2,822 feet, which has been in for some time, but not yet completed.

Bay Oil Co.'s No. 1, CNL NW NE Section 36-24-7, was completed. It tested 90 bbls. in 24 hours on the pump, from Burgess sand at 2,529-55 feet.

Sinclair Prairie Oil Co. and Mead Oil Co.'s No. 1, NW cor. NE Section 22-24-8, had chat at 2,385-92 feet. Pay at 2,364-82 feet was shot with 80 quarts and the well made 180 bbls. in 30 hours on the swab.

Gypsy Oil Co. and Continental Oil Co.'s No. 1, C SW SW SE Section 12-23-7, had Hominy sand at 2,823-94 feet and Siliceous lime at 2,894-2,901 feet. It flowed 1,397 bbls. of oil and 225 bbls. of water in 24 hours. The oil is coming from Hominy sand but the water is believed to be coming from the Siliceous lime. This well had been acidized.

Texas Co.'s No. 1, SE cor. NW Section 12-23-7, a Cleveland sand well at 1,609-18 feet, swabbed and flowed 68 bbls. in 24 hours and was completed.

Norbla Oil & Gas Co.'s No. 1, SW cor. NE Section 29-23-9, was shot with 110 quarts in Bartlesville sand at 2,099-2,135 feet. The well made 124 bbls. in two hours and was shut in for tankage.

Link Oil Co.'s No. 7, SE NE NW Section 4-22-12, got Bartlesville sand at 1,408-31 feet, and shot it with 50 quarts. The well flowed 20 bbls. in 24 hours.

New work in Osage County included Sinclair Prairie Oil Co.'s No. 2, NE NW NW Section 22-25-6, rig on the ground; Lewis Production Co.'s No. 1, SE cor. Section 9-24-7, drilling at 575 feet; Producers & Refiners Corp.'s No. 2, NW SW NW Section 15-24-7, drilling at 370 feet; Champlin Refining Co.'s No. 2, NW NE SE Section 16-24-7, a rig; Kasishke and Peters Petroleum Corp.'s No. 2, NE SE NE Section 16-24-7, rigging and building rig for No. 3, SE NE NE Section 16-24-7; Continental Oil Co.'s No. 2, SE cor. Section 2124-7, a rig; Norbla Oil & Gas Co.'s No. 1, SW SE NE Section 25-24-7, a location; Bay Oil Co.'s No. 1, NW cor. NE Section 25-23-8, location; F. A. Haver and others' No. 2, SE SW SE SW Section 16-23-11, rigging up to drill deeper from 1,695 feet; Murringold and others' No. 2, CEL SW SE NE Section 25-21-8, drilling at 350 feet; C. T. Matthews' No. 2-A, CNL SE NE NW Section 26-21-9, drilling at 535 feet.

Blauner and others' No. 1 Maple, NE NW SE Section 20-27-4e, Kay County, was a hole full of water at 3,343 feet, and was abandoned.

Roy List's No. 1 Diem, SW NW NW Section 18-21-8, Pawnee County, an old well drilled deeper, was acidized at 1,985-95 feet, and it pumped 15 bbls. of oil and 8 bbls. of water.

Big Wells in Lucien Field

In the Lucien Field in southwestern Noble County, the Lucien Consolidated's No. 1 Magney (drilled by the Shell Petroleum Corp.), C SW SW Section 17-20-2w, flowed 1,080 bbls. in 24 hours at a total depth of 5,268 feet. It got second Wilcox sand at 5,187 feet. Same operator's No. 1 Miller, C SE SE Section 18-20-2w, got the top of the second Wilcox sand at 5,125 feet and drilled to 5,205 feet. It tested 1,777 bbls. in 21 hours. The biggest production came in the last few feet.

The Lucien Consolidated's No. 1 Boley A, C NE NE, was at a total depth of 5,200 feet and was drilling by tools.

Wildcat Operations in Oklahoma

Week Ending October 7

Northern Oklahoma

ALFALFA COUNTY

Company, farm and location— Remarks:

Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w.....S.D. 6,048 ft.

BECKHAM COUNTY

Mid-Texas' No. 1 Sidell, SE SW SW Sec. 17-9-22w.....Set 6-in. 2,377 ft; drlg. 2,575 ft.

Pattee Royalty Co.'s No. 1 Goose Tree, SW SE SW SE Sec. 33-10-23w .....T.D. 3,965 ft.

COAL COUNTY

Dodd & Burton's No. 1 Grigsby, NW SE NE Sec. 35-1-8..Dry and abd. 1,878 ft.

Funk & Russell's No. 1 Miller, SE NE Sec. 10-2-8 .....Fishing 2,750 ft.

GARFIELD COUNTY

J. H. Lewis' No. 1 Clark, C NW NW Sec. 34-21-6w .....Drlg. 4,543 ft.

HUGHES COUNTY

Dixie-Lee Oil Co.'s No. 1 Taylor, C NW Sec. 37-5-10.....Drlg. 250 ft.

Scruggs et al's No. 1 Black, NE Sec. 13-9-10 .....Drlg. 150 ft.

KAY COUNTY

Blauner et al's No. 1 Maple, NE NW SE Sec. 20-27-4....Dry and abd. 3,343 ft.

Morgan et al's No. 1 Bush, NW NE NE Sec. 25-28-4....Drlg. 2,251 ft.

Burton Lewright et al's No. 1 Leseman, SW NE SE Sec. 4-28-2 .....Rig.

KIOWA COUNTY

Christian's No. 1 Jones, NE NW Sec. 8-7-15w .....C.O.; T.D. 1,904 ft.

LINCOLN COUNTY

Amerada Pet. and Stanolind O. & G. Co.'s No. 1 Martinek, NW SE Sec. 35-13-5e .....Cellar.

Amerada Pet. Co.'s No. 1 Long, C NW NW SW Sec. 12-13-6 .....S.D. 4,210 ft.

MARSHALL COUNTY

Robb et al's No. 1 Vittitoe, NE SE Sec. 11-5s-4e.....S.D. 3,315 ft. for fuel.

MURRAY COUNTY

A. E. Harden's No. 1 Sadler, NE Sec. 19-1-2 .....Rig.

T. E. Revells et al's No. 1 Wolfe, NE cor. Sec. 13-1-2...Drlg. 400 ft.

MUSKOGEE COUNTY

J. S. Routt et al's No. 1 Escoe, CWL SE NE Sec. 17-13-17 T.D. 1,200 ft.; S.D. for 10-in. csg.

OKLAHOMA COUNTY

Houston et al's No. 1 Ketcham, CSL NW NE SE Sec. 32-14-3w .....Coring 6,674 ft.

Mid-Continental Oil Co.'s No. 1 Edwards, C SE SE Sec. 19-11-1 .....R.O. 2,160-80 ft.; S.D. 2,341 ft.

H. E. Rapp's No. 1 Price, CEL NE SW Sec. 19-14-3w....T.D. 6,708 ft.; 5,500 ft. of fluid in hole.

F. Russell's No. 1 Heapley, SW NW NE Sec. 23-12-3w..Wilcox sand 6,649-59 ft.; 603 bbls. in 24 hrs.; hole bridged.

PAYNE COUNTY

Kemp & Nunnelee's No. 1 Crane, SW SE SW Sec. 10-17-5 Dry and abd. 3,536 ft.

O. N. Maines et al's No. 1 Scheidberg, NW SW NW Sec. 27-22-6 .....Wilcox sand 3,114-38 ft; wtr.; S.D.

PITTSBURG COUNTY

Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14 ..Broken sand 2,100-3,200 ft.; fishing for tools.

PONTOTOC COUNTY

Galbreath's No. 1 Stafford, NE SE SE Sec. 31-2-6.....Drlg. 740 ft.

Gilbert's No. 1 Starritt, NW SE Sec. 28-4-6.....Drlg. 1,313-20 ft.; 5,000,000 ft. of gas.

Choctaw O. & G. Co.'s No. 1 Thompson, SW NE SW Sec. 1-1-7 .....Drlg. 1,666 ft.

W. E. McGraw's No. 1 Mayhue, NE Sec. 19-2-6.....S.D. 1,200 ft.

McGee et al's No. 1 Newhorn, SW NE Sec. 31-5-4.....Rig.

Williams' No. 1 Kroth, NE SE Sec. 33-3-4.....H.F.W. 1,977 ft.

Wirrick's No. 1 fee, SE SW Sec. 29-2-7 .....Acidized; flowed 550 bbls. in 24 hrs.; S.D. for tankage.

Sledge et al's No. 1 Worley, SW SE SW Sec. 12-3-7w....15,000,000 ft. gas; 1,100 lbs. rock pressure; sand 1,174-77 ft.

POTTAWATOMIE COUNTY

Atlantic Oil Prod. Co.'s No. 1 School land, C NE NW NW Sec. 36-10-4 .....Rigging up.

Conley Drlg. Co.'s No. 1 Vinson, NE cor. Sec. 13-7-4e....Drlg. 2,794 ft.

Payne Drlg. Co.'s No. 1 Lovelace, NW SW NW Sec. 27-6-4 T.D. 3,780 ft.; csg. collapsed.

Vivian Oil Co.'s No. 1 Kanster, SE SW Sec. 18-7-4.....Drlg. 3,413 ft.

SEMINOLE COUNTY

Huffman Drlg. Co.'s No. 1 Scott, NW cor. SE .....S.D. 1,030 ft.

Stewart & Egan's No. 1 Sanderson, NE SW Sec. 27-6-5..Drlg. 3,675 ft.

Sinclair Prairie's No. 1 Tierney, SE cor. Sec. 2-11-6 .. Dry and abd. 4,608 ft.

WASHITA COUNTY

McWhirter & Bost's No. 1 Hall, SW SE SE Sec. 28-8-19w.Drlg. 180 ft.

Southern Oklahoma

ATOKA COUNTY

J. D. Boukan's No. 1 Howard, NW SW NW Sec. 20-2s-10e.Drlg. 406 ft.

Blake's No. 1 Galbreath, SW NE SE Sec. 5-1-15 .....Drlg. 245 ft.

Malernee et al's No. 1 Cole, NE NW Sec. 19-2s-14.....Drlg. 638 ft.

JEFFERSON COUNTY

Wakefield's No. 1 Kelly, NW SE Sec. 1-5s-5w.....Drlg. 550 ft.

TILLMAN COUNTY

J. H. Everett's No. 1 Crane, SW cor. Sec. 15-2s-14w .. Rig.

MAJOR COUNTY

Paul R. Robb's No. 1 Vittitoe, C NE SE Sec. 11-5-4.....Drlg. 1,950 ft.

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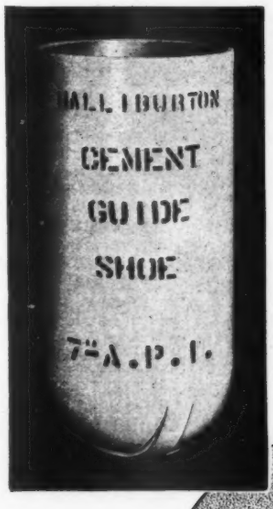

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it was flowing by heads and produced 1,310 bbls. in 24 hours.

Texas Co.'s No. 1 Maxwell, C E half NE NW Section 18-20-2w, was drilling at 5,410 feet. Top of the Mississippi lime was found at 5,250 feet, but no Wilcox sand was reported.

Stanolind Oil & Gas Co.'s No. 1 Kolb, C NW NE Section 33-20-2w, was drilling below 5,080 feet with oil in the hole and some gas.

The Lucien Consolidated Oil Co. has rig up for No. 1 Moelling, C SW SE Section 17-20-2w, and was building rig for No. 2 Magney, C SE SW Section 17. The Shell Petroleum Corp. is doing all the drilling for the Lucien Consolidated which is made up of the eight companies that own the block on which the discovery well was drilled. There are six completed wells in the Lucien Field with a potential of 30,000 bbls. per day, and the three above mentioned almost completed. It is expected that by January 1 there will be 15 producing wells in the field as there are six other wells drilling and by the close of the year there will be a number of wells that will have started drilling.

In the Crescent Pool

In the Crescent Pool in Logan County, it is expected that there will be five oil wells by November 1. The discovery well of the Gypsy Oil Co. and Carter Oil Co. in Section 28, was a 5,700-bbl. initial producer. The same companies' No. 1 Walker, C NE NE Section 33-17-4w, had Wilcox sand at 6,078 feet and cored to 6,091 feet. The well blew in with about 10,000 feet of gas and 1,673 bbls. of oil in 19 hours.

The Sinclair Prairie Oil Co.'s No. 1 Phillips, NE NE NW Section 27-17-4w, set pipe at 4,999 feet and was drilling at 5,055 feet. It had a good oil showing in the Layton sand. The same company's No. 1 Short, C SW NE Section 27-17-4w, got Sylvan shale at 6,193 feet, Viola lime at 6,290 feet and was drilling by pipe at a total depth of 6,330 feet.

The Continental Oil Co.'s No. 1 McConnell, C SE SE Section 28-17-4w, has Layton sand at 4,854-64 feet; cored 7 feet of sand and 4 feet of shale at 4,857-68 feet, and cored shale at 4,868-79 feet. Nine-inch casing was set at 4,944 feet and the crew was drilling at 4,951 feet. Carter Oil Co.'s No. 1 Good, C SW NW Section 27-17-4w, was drilling at 4,655 feet. Sinclair Prairie Oil Co.'s No. 1 J. W. Shaffer, NE SW Section 28-17-4w, was drilling at 5,500 feet.

Creek County Operations

Sheldon Oil Co.'s No. 2 Manuel, NE NW NE Section 15-19-7, north end of the Cushing Field, Creek County, found Hogshooter sand at 1,345-65 feet and Layton at 1,395-1,425 feet, but both were barren.

C. W. Titus' No. 1 Sena, NW NE NE Section 10-17-8, was shot in Layton sand at 1,296-1,326 feet and made a 35-bbl. showing in 24 hours.

Talbott and others' No. 1 Keifer, SE SW SW Section 29-17-12, a Wilcox sand test, was abandoned after penetrating Glenn sand at 1,630-34 feet. The hole was plugged back to 900 feet, and the 8-inch left in the hole.

A number of wells scattered through the county were close to completion.

New work in Creek County includes Big Four Petroleum Co.'s No. 2 McIntosh, SE SW SE Section 34-19-8, rigging up; Johnson Oil Refining Co.'s No. 2 Carolina, CSL NW SW NE Section 1-19-9, spudding; National Refining Co.'s No. 11 Futtrell, SW cor. NE Section 1-19-9, set 10-inch pipe at 165 feet; Johnson Oil Refining Co.'s No. 4 Davis, CNL NE SE Section 19-19-10, drilling at 350 feet; E. L. Robinson's No. 2 Prince, NE SW NE Section 3-18-8, rig up; L. B. Jackson's No. 7 Wills, CWL SW NW Section 26-18-8, rigging up; Bay State Oil Co.'s No. 2 Crabtree, SE NE SW Section 34-18-8, machine in; Doke & Hughes' No. 1 E. Rentie, NW SW SE Sectio 34-18-8, machine; Doss and others' No. 2 Tiger, SW NW NE Section 34-18-8, drilling at 150 feet; F. L. Marrs' No. 3 Tiger, CNL NE NE Section 34-18-8, rig; Texas Co.'s No. 1 Harry, NW cor. SW Section 35-18-8, rigged up; Henry and others' No. 1 Taylor, NW cor. SW Section 2-17-8, rigged up; S. W. Anthony's No. 6 Muskogee, SE SW NW NE Section 9-16-12, drilling at 600 feet; Phillips Petroleum Co.'s No. 5 Charles, SW SE SE Section 25-15-7, drilling at 1,330 feet.

Tulsa and Wagoner Counties

In the Sand Springs district, Tulsa County, O. M. Ireland's No. 1 Partridge, SE SW NE Section 32-19-11, was a 17-bbl. well at 1,102-10 feet. Same operator's No. 1 J. Partridge, NW NE SE Section 32-19-11, was good for 250,000 feet of gas from Taneha sand 1,882-1,912 feet.

McIntire and others' No. 2 Lovett, CNL SE SW Section 35-18-15, was dry and abandoned at 1,082 feet.

Webb's No. 1-A Landon, SW SW NE SW Section 16-18-15, had sand at 1,105-25 feet and was completed as a 1,500,000-foot gasser.

New work reported during the week included Sheridan Oil Co. and others' No. 5 C. Snake, CEL SE NW Section 26-18-15, machine in; J. E. Martin's No. 1 Posey, SE SE SW NW Section 35-18-15, shut down at 1,000 feet; H. W. Bowder's No. 1 L. Perryman, NW NE NE SW Section 5-17-14, machine; Scales & Boley's No. 1-A Vann, NE NW NW Section 1-17-15, machine; G. E. Cahill's No. 1-A Tiger, NW NW NE SW Section 2-17-15, drilling below 150 feet; same operators' No. 2 Tiger, NE NE NW SW Section 2, machine; same operators' No. 3 E. Tiger, C SE NW Section 2-17-15, machine; McIntire and others' No. 4 Tiger, NE cor. NW Section 2-17-15, rigged up; Greer and others' No. 1 T. Tiger, CSL NE NW Section 2-17-15, drilling at 410 feet; Knox & Shouse's No. 1 K. Tiger, C SE NW Section 11-17-15, spudding.

Okmulgee and Muskogee Counties

R. O. Slater's No. 5 Jefferson, NE SW NE Section 19-15-12, Okmulgee County, was shot with 100 quarts at 1,649-70 feet and flowed 25 bbls. in 24 hours.

Bassett and others' No. 2 Checote, SW SE SW Section 20-15-13, was abandoned at 2,593 feet. The hole filled with water from Wilcox sand at 2,588-93 feet.

Babcock Brothers' No. 6 Harris, C SE NW Section 1-14-14, was acidized at 1,130-65 feet. It pumped 5 bbls. in 24 hours.

Big Wells in Oklahoma City

Frank Russell's No. 1 Highley, SW NW SE Section 23-12-3w, had Wilcox sand at 6,649-59 feet. The well flowed 325 bbls. in 13 hours and later 603 bbls. in 24 hours. The crew was rigging up standard tools to clean out a bridge. Same operator has made a location for No. 1, NW SW NE SW Section 23-12-3w, and has cellar dug for No. 1, SW NE SW Section 23-12-3w.

Phillips Petroleum Co.'s No. 2 Classen, 330 feet north and 782 feet east of C, Section 15-11-3w, flowed 609 bbls. in four hours, with 4,000,000 feet of gas from Wilcox sand at 6,425-6,516 feet.

Pierce and others' No. 1 Shepard, C NE NW SE Section 15-11-3w, was estimated at 500 bbls. in two hours as it flowed into pits. Wilcox sand was topped at 6,390 feet; total depth of hole 6,476 feet.

Stauffer, Stephens and others' No. 1 Anderson, 354 feet south and 823 feet east of C Section 15-11-3w, flowed 1,916 bbls. in three hours and later 908 bbls. in one and one-half hours from Wilcox sand at 6,385-6,502 feet.

Gulf Production Co. of Oklahoma's No. 5 Medders, in Section 22, was tested again and flowed 3,937 bbls. in 10 hours. This well came in in May. Same company has rig up for No. 3 Tull, 443 feet south and 45 feet west of C Section 22-11-3w.

Beverly Hills Oil & Gas Co.'s No. 1 Chester, 60 feet from north line and 100 feet from east line, NE NW Section 27-11-3w, has a hole full of oil from Wilcox sand at 6,560-6,607 feet. It is shut in.

Indian Territory Illuminating Oil Co. has made location for No. 2 Jarvis, CWL NW SE NW Section 26-11-3w, and for No. 4 Wickline, C NE SW NW Section 26-11-3w.

Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 5 Berg, CEL SW NE SW Section 26-11-3w, is a location; likewise No. 6 Berg, CEL SE NW SW Section 26.

Greater Seminole

In the Keokuk Falls area in Seminole County, Carter Oil Co. and others' No. 1 Ray, in Section 23-11-6, took a potential gauge and made 1,937 bbls. of oil in 22 hours. It also produced 76 bbls. of water.

Sinclair Prairie Oil Co. and others' No. 1 Terney, SE cor. Section 2-11-6, was dry and abandoned at 4,608 feet.

Carter Oil Co. and others' No. 1 Riddle, C S half SE SE Section 35-11-6, swabbed 101 bbls. and was to be deepened. Total depth is 4,078 feet, 13 feet in Misener sand.

Atlantic Oil Producing Co. and others have a rotary rigged up for No. 1 School land, a wildcat, C NE NW NW Section 36-10-6, Seminole County.

Donahue and others' No. 1 Taylor, NW SW SW Section 29-10-6, flowed 45 bbls. of sediment after a 15-quart shot in Earlsboro sand at 3,420-31 feet.

Sinclair Prairie Oil Co.'s No. 1 Davis, NE NW NW Section 13-9-5, Earlsboro area, Seminole County, an old well plugged back, swabbed 15 bbls. of oil and salt water from sand at 3,400-04 feet. It will be tested on the pump.

Carter Oil Co.'s No. 9 Campbell, NW cor. SW Section 20-9-6, Seminole City Pool, a Calvin sand well at 2,708-55 feet, made 1,351 bbls. in 24 hours in a potential test.

Carter Oil Co.'s No. 7 Roger, NE NW SE Section 2-8-5, Bowlegs area, gauged 381 bbls. in 24 hours from sand at 4,225-40 feet, which had been shot.

Boettcher & Blackwell's No. 3 Jacobs, NW SE SE Section 9-7-8, West Holdenville Field, Seminole County, was completed. It pumped 118 bbls. in 24 hours from Booch sand at 2,927-34 feet.

Winona Oil Co. and Jarvis & Holm's No. 1 Campbell, 330 feet north and 1,180 feet east, SW cor. Section 20-7-8, which has been in for some time, swabbed and flowed 118 bbls. in 24 hours, its best performance.

Royce and others' No. 5 Walker, NW SE SW Section 22-7-8, got Calvin sand at 1,158-82 feet, and made 30 bbls. of oil in 24 hours on the pump. It was completed.

New work in the Greater Seminole area included Commercial Drilling Co.'s No. 1 Rentie, C NW SE SE Section 8-9-6, cellar; Carter Oil Co.'s No. 7, C SW NW SW Section 19-9-6, location; Phillips Petroleum Co.'s No. 7 Fixico, C NW SW NW Section 20-9-6, drilling at 1,895 feet.

Utilities Production Co.'s No. 1 Cooper, NE cor. SW Section 22-7-17, Pittsburg County, is a 750,000-foot gasser at 2,565-95 feet.

Carter Oil Co.'s No. 4 Kilgore, SW NW NW Section 27-3n-5w, Stephens County, was dry and abandoned at 1,911 feet.

Sledge and others' No. 1 Wooley, SW SE SW Section 22-2n-7e, had sand at 1,174-77 feet. It is estimated as a 15,000,000-foot gasser, rock pressure of 1,100 pounds.

Dodd & Burton's No. 1-A Grigsby, NW SE NE Section 35-1n-8e, Pontotoc County, was dry and abandoned at 1,878 feet.

Delaney and others have cellar dug for No. 1 Dawes, Hardin, SE NW Section 30-2n-7e, and for No. 2, SW cor. NE Section 30.

Navajo Oil Co. is building rig for No. 1 Miller, NW cor. NE Section 13-1-6w, Stephens County.

Southern Oklahoma

Farlyn Oil Co.'s No. 10 Seay, NW SW SE Section 3-7s-5w, Jefferson County, had sands at 1,192-1,222 feet and 1,240-50 feet. It is estimated at 50 bbls., but had not been completed. The crew was running 5-inch liner, total depth 1,254 feet.

In Marshall County, near the Red River, Kingston Oil & Gas Co.'s No. 4 Adams D, SE NE SE SW Section 31-7s-6e, made an 8-bbl. well at 540-50 feet.

Roy Kyle's No. 1-B Lester, SW NE NW SE Section 4-2s-8w, Stephens County, was dry and abandoned at 1,445 feet. It had a showing of oil and water at 1,438-45 feet. The owner made a location for No. 2, SE NE NW SE Section 4-2s-8w.

George Pace and others' No. 2 McDonald, SW SE NE NW Section 28-2s-7w, Stephens County, was completed in sand at 1,676-86 feet. It made 60 bbls. of oil and 5 bbls. of water in 24 hours.

In the Tussey area in Carter County, Walter Neustadt completed No. 1 fee, NE SW SW Section 3-1s-3w. It swabbed 705 bbls. in 24 hours. The best pay was at 2,805-40 feet, but the well has 10 sands from 2,665 feet to 2,840 feet.

The Carter Oil Co.'s No. 1 Gideon Gray, C SE NE NE Section 10-1s-3w, cemented casing at 2,040 feet and was drilling out plugs, while Foster Oil Co.'s No. 1 Carter, C NW NW SW Section 13-1s-3w, was shut down until cement sets at 2,500 feet, after plugging back from 2,550 feet.

The Mudge Oil Co.'s No. 2 Majors, C NE NW SE Section 25-1s-3w, swabbed 810 bbls. in 24 hours from a sand series at 2,574-2,688 feet.

Samedan Oil Co.'s No. 4 Hopson, C SE SW NE Section 25-1s-3w, swabbed and flowed 563 bbls. from sand at 2,223-27 feet, 2,539-46 feet and 2,590-2,700 feet.

New work started in the southern counties included Southern Oil Co.'s No. 1 Seay, NW SW NW NE Section 3-7s-5w, Jefferson County, a rig; Simpson-Fell Oil Co.'s No. 8 Walker, NW SE SW NW Section 10-4s-2w, Carter County, drilling at 1,441 feet; Owl Oil Co.'s No. 16 Wilson, SW SE SW Section 4-3s-5w, Stephens County, drilling at 480 feet; George Pace and others' No. 1-A Bristow, NE SE NE NE Section 29-2s-7w, Stephens County, drilling at 970 feet; L. Sykes' No. 1-A Cash, C SW NE SE Section 17-1s-8w, Stephens County, rigging up; Carter Oil Co.'s No. 1 Bridenthal, C NW SW SW Section 3-1s-3w, Carter County, rig; Walter Neustadt's No. 2 fee, SW SE SW Section 3-1s-3w, rig; Carter Oil Co.'s No. 1 Dolman, C NW NE NW Section 10-1s-3w, location.

J. A. CONNOLLY DIES

J. A. Connolly, 76, pioneer resident of Muskogee, Okla., and for more than half a century a figure prominent in the petroleum industry, died at his home after a lingering illness.

Mr. Connolly was a native of Lawrenceville, Canada, but came to the United States in early boyhood and from the time he was 13 years old has been identified with the oil industry. His first work was with various contractors in the Oil Creek region of Pennsylvania not far from the original discovery well. He was an experienced driller before he was 17 years old. Later, associated with his four brothers, all now dead, he organized the Connolly Brothers Oil Co., which operated in the Bradford, Pennsylvia, Field. Since, Mr. Connolly has operated in fields in various sections of the country, including West Virginia, Ohio, Indiana and Illinois, and in 1904 came to the then Indian Territory. His operations since have been in areas about Bartlesville, Nowata, Glenpool and in various other sections of the State.

BUYS OIL CREEK PROPERTY

OIL CITY, Pa., Oct. 9.—The Brundred Oil Corp. of this city has purchased for an unnamed consideration the entire holdings of Midland Oil Corp., of New York City, in Cherrytree and Cornplanter Townships, Oil Creek Valley. This property consists of 550 acres upon which there are 102 pumping wells, seven power houses, two gasoline plants and six dwelling houses.

More Drilling in the New Pool in Ector County; Higher Gravity Oil in Foard County Well

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Oct. 9.—Broderick & Calvert's No. 1 Cowden in the S half of Section 25, Block 44, Township 2s, T.&P. Survey, was shot twice during the week. The first shot of 60 quarts was placed at bottom, 4,338 feet, and a second shot, 200 quarts, was placed at 4,140-85 feet. The last shot bridged the hole, which is now being cleaned out preparatory to placing the well on production.

This well opens a new area, the fourth producing area in Ector County, and will lead to more drilling in the immediate vicinity, although development of the last two discovered pools has been slow and this area may likewise be developed at a slow rate. There are three pipe lines in the vicinity of the well and an outlet may be laid to connect to one of these lines. Probably the Humble Pipe Line Co. will make a connection, although the Magnolia Pipe Line Co. and Gulf Pipe Line Co. also have lines running within a short distance from the well.

Stanolind Oil & Gas Co. completed another well in the Addis area during the week. This is No. 2 Cowden in Section 26, Block 43, Township 2s, T.&P. Survey, Ector County. Initial production was 354 bbls. following a 40-quart shot from 4,127-35 feet, 200 quarts from 4,020-65 feet and 90 quarts from 4,076-99 feet. Total depth is 4,286 feet.

Landreth Production Co. and Llano Oil Co.'s No.1 Holt in Section 20, P.S.L. Survey, marked the seventh producer for the Addis and Cowden area this week when it made 435 bbls. the first 24 hours and 280 bbls. the second 24 hours following a 260-quart shot from 4,232-97 feet. Tubing is to be run preparatory to completing. This well lies between the former two wells in which the former company is interested and two wells of the Stanolind Oil & Gas Co. This area is in the northern part of the county and was opened by the latter company two years ago but development has been held back until recently because of low prices and no demand for the oil. The Humble Pipe Line Co. has a line connecting to the wells in the pool.

Irion County

P. A. Johnson completed another test near the city of Mertzon in Irion County where he recently drilled in a nice shallow producer. This second test in the area was given up as a dry hole at a total depth of 1,460 feet after having only a small showing of oil at 1,266, 1,277-78 feet and a third at 1,292-98 feet. It filled half full of water at 1,404-06 feet. It is approximately one-half mile west of his first well in this area.

Yates Field

Another good well was completed in the Yates Field, Pecos County, this week. Sproles and O'Neal, formerly receivers for the Fred Turner vacancy strips, completed No. 6-A Turner for an initial production of 1,867 bbls. per hour. Total depth is 1,661 feet. It was located on Tract 1, Lease A, but now belongs to the Mid-Kansas Oil & Gas Co. which acquired the vacancy strips from Turner by purchase.

Runnels County

The Golden Petroleum Co. of San Angelo sold a 75-acre strip to B. C. Mann of that city, A. D. Neal of Garden City and W. B. Currie of Big Spring, in the McMillan Pool northeast of Ballinger in Runnels County. A test is to be drilled immediately in the southwest corner of the tract, which is in the southeast quarter of Subdivision 10, N. Travis Survey. It will be a northeast offset to the Amber Petroleum Co.'s No. 1 Wade, which came in for a nice well in August, extending the pool about a quarter mile, drawing interest back to the area and starting more development in the pool, which has practically lain idle for four years.

Ward County

Three more producers were completed in Ward County this week, this county furnishing the greatest number of producing wells in West Texas during the past two years, activity continuing throughout the months in the shallow area of southeastern Ward County, where independents have been the principal developers, drilling the wells mostly with machines and acquiring the leases from major producers who farmed them out for development, retaining an overriding royalty for payment in most cases.

One test was abandoned in the Ward County shallow area during the week, the remainder adding an initial production of 966 bbls. to the wek's total of West Texas initial production.

Winkler and Howard

One small well was added to the north Winkler County list this week. The Denman area of eastern Howard County also received another small producer this week. It will also be found on the completion list.

Crane County

The Gulf Production Co. staked an interesting location during the week, in the SE cor. of Section 21, Block B-17, Public School Lands, in the extreme western edge of Crane County in a wildcat area. It is about 7 miles northwest of the Tubbs producer discovered four years ago by the Gulf Production Co., the first well to produce oil below the sulphur water horizon in West Texas.

Fisher County

Two locations were staked in Fisher County this week and the Skelly Oil Co. staked a location in the Addis area in Ector County. The Denman area of eastern Howard County also received another location this week. Jones and Pecos County each received a location whereas two were staked in Ward County.

WICHITA FALLS DISTRICT

The Texas Co.'s No. 3 Les Johnson in Section 36, Block "L," on a block of around 8,700 acres in western Foard County, which opened the second producing area for the county, but the first one of major importance, when it came in during the latter part of July, 1933, making an initial production of 581 bbls. at a total depth of 3,571 feet, has been deepened 6 feet to 3,577 feet with the result that it increased to 2,800 bbls. per day.

This is of exceptional importance. The gravity of the oil was also increased when the well was deepened in the sandy lime. Gravity increased from 42.2 to 45.2 degrees, the highest gravity oil found in the Wichita Falls or Panhandle district, another fact of great importance. The Gulf Pipe Line Co. is transporting the oil for the Texas Co., a short connecting line having been recently laid from the well to the former's main line coming from the Panhandle district to the north.

Benton & Holmes' No. 1 Mrs. C. L. Davenport in Block 27, J. Fitch Survey, northeast Montague County, is showing for a wildcat producer extending production another 1½ miles southeast of the Continental Oil Co. and Seitz' No. 1 J. Hott well, recently completed as a good extension to the Montague producing area. Top of the pay in this latest strike was logged at 1,517 feet. Total depth is 1,533 feet. A liner is now being run preparatory to testing the well. The Bulcher Pool of northwest Cooke County is only 3 miles west of this new strike which may link the Montague-Cooke producing area, although it is producing from a different sand.

COMPLETIONS IN WEST TEXAS

Howard County

Bryant's No. 1 Denman, top pay 2,615 feet, shot with 480 quarts from 2,615-2,863 feet, initial production pumping 20 to 30 bbls. per day, total depth 2,863 feet.

Ector County

Stanolind Oil & Gas Co.'s No. 2 Cosde, top pay 4,015-30 feet, increase in pay from 4,040-48 feet, shot with 40 quarts from 4,127-35 feet, 200 quarts from 4,020-65 feet, and 90 quarts from 4,076-99 feet, initial production after shot 354 bbls. first 24 hours, total depth 4,286 feet.

Pecos County

Sproles & O'Neal's No. 6-A Turner, initial production 1,867 bbls. per hour, total depth 1,661 feet.

Ward County

Atlantic Oil Producing Co.'s No. 5 Johnson, top pay 2,295-2,335 feet, initial production 400 bbls. of oil per day flowing through tubing, total depth 2,545 feet. Moran and others' No. 1 Reynolds, show of oil from 2,200-15 feet, dry and abandoned, total depth 2,648 feet. Prince Brothers' No. 3-B Hall-Roberts, top pay 2,436-49 feet, initial production 196 bbls. of oil per day, total depth 2,451 feet. Thompson's No. 4 Johnson, top pay 2,308-10 feet, initial production 390 bbls. per day flowing through tubing, total depth 2,530 feet.

Winkler County

Richardson and others' No. 3 Sealy, top pay 3,170-85 feet, initial production 30 to 40 bbls. per day flowing through tubing, total depth 3,225 feet.

Wildcat Operations in West Texas

Week Ending October 9

BREWSTER COUNTY

Company, well, farm name, section and block—	Remarks
C. M. Joiner's No. 1 McIntyre	T.D. 1,000 ft.

COKE COUNTY

C. D. Hagerty et al's No. 1 Gaston, in Joseph Young Sur. No. 11	T.D. 710 ft.

CONCHO COUNTY

Mintex Oil Co.'s No. 2 Waring Estate, 660 ft. from N line, 150 feet from W line SW ¼ Sec. 2120, A. T. Robinson Sur.	Underreaming at 1,460 ft.

CRANE COUNTY

Gulf Prod. Co.'s No. 1 Edwards, 330 ft. from S line and 330 ft. from E line of Sec. 21, Blk. B-18, Pu lic School Land Sur.	Location.
Loffland Bros.' No. 1 Tubbs, 1,324 ft. from N line, 1,320 ft. from W line, Sec. 9, Blk. 27-B, P.S.L. Sur.	Drlg. 3,596 ft.

ECTOR COUNTY

Broderick & Calvert et al's No. 1 E. F. Cowden, 2,240 ft. from E line, 330 ft. from S line of Sec. 25, Blk. 44, Twp. 2s, T.&P. Sur.	S.D. 4,338 ft.; preparing to shoot; flowed 156 bbls. in 48 hrs.
Landreth Production Co. & Llano Oil Co.'s No. 1 O. B. Holt, 660 ft. from S and W lines of N half of Sec. 20, P.S.L. Sur.	Shot 260 qts. from 4,232-4,297 ft.; flowed 435 bbls. first 24 hrs. after shot; T.D. 4,313 ft.
Skelly Oil Co.'s No. 1 Addis, 990 ft. from N line and 2,200 ft. from E line of Sec. 35, Blk. 43, Twp. 2s, T.&P.R.R. Sur.	Location.
Fred Turner's No. 1-B F. V. Addis, 440 ft. from the E line and 330 ft. from S line of Sec. 35, T.&P.R.R. Sur., Blk. 43, Twp. 2s	Cellar.

FISHER COUNTY

Condor Pet. Co.'s No. 1 Holley, 1,170 ft. W and 660 ft. from N lines of E half, Sec. 6, Blk. R, W. E. Richardson Sur.	Moving in material and S.D.

(Continued on Page 63)

ROCKY MOUNTAIN RUNS

Estimated daily average production for the week ending October 7 follows:

WYOMING	
Salt Creek	19,560
Big Muddy	1,740
Badger Basin	40
Byron-Garland	1,046
Byron-East	100
Dallas Derby	400
Dutton Creek	70
Elk Basin	570
Ferris	40
Frannie	210
Grass Creek	shut in
Greybull	10
Hamilton Dome	870
Hudson	210
LaBarge	860
Lance Creek	200
Lost Soldier	1,460
Mule Creek	shut in
Midway	70
Notches	shut in
Oregon Basin	1,080
Osage	620
Pilot Butte	30
Rex Lake	60
Rock River	1,250
South Casper	750
Poison Spider	240
Teapot	30
Warm Springs	shut in
Total	31,510
MONTANA	
Buckley-Border	320
Cat Creek	710
Cut Bank	880
Dry Creek	420
Kevin-Sunburst	3,480
Lake Basin	50
Pondera	720
Total	6,580
COLORADO	
Florence	210
Fort Collins and Wellington	550
Iles Dome	620
Moffat	540
Orchard	150
Rangely	90
Tow Creek	220
Total	2,380
NEW MEXICO	
Artesia	590
Cooper area	70
Empire area	0
Eunice area	1,020
Getty Pool	0
Hobbs	33,530
Hogback	220
Hospah	shut in
Jal	1,670
Lea area	2,200
Jackson	940
Maljamar	200
Rattlesnake	840
Table Mesa	80
Total	41,360
Total all fields	81,830
Total previous week	81,310
Difference	520

To Test Anderson County Wildcat This Week; East Texas Locations and Completions Less

By L. E. BREDBERG

DALLAS, Tex., Oct. 9.—The wildcat gasser of Tide Water Oil Co. and Texas Seaboard Oil Co. on the Long Lake Plantation, southwest Anderson County, was drilled to a total depth of 5,468 feet in hard white sand without picking up an increase of gas, oil or water during the week, a total of 321 feet of Woodbine sand formation being logged from top at 5,147 feet. The owners decided to stop at this point, there being danger of drilling into water sand if carried deeper.

It was plugged back to 5,290 feet and 5-inch casing is now being run to 5,245 feet so as to shut off the higher gas bearing formation to allow a test of the good looking sand cored between this point and 5,275 feet. Core taken between these points appears similar to cores taken from producing wells in the Van and East Texas Fields, appearing certain as coming from a sufficiently saturated formation to develop an oil producer in the test.

A test may be made during the middle of the week to give definite information as to the future of this, the first wildcat drilled in the area, which will make an estimated 20,000,000 to 50,000,000 feet of gas if not making oil from the 30 feet of sand to be tested. The first gas sand, making a heavy flow though choked to a half inch, was logged from 5,216-32 feet. Another test was made at 5,257 feet, showing a higher volume of gas, but part of which was believed to be coming from the above sand.

Two 1,000-bbl. tanks have been set at the well preparatory to making the test, in case the well blows itself into an oil producer as expected by the companies holding the large block of nearly 24,000 acres surrounding the test. If it proves a discovery oiler for the area a short line will no doubt be laid to connect with a main line of the Gulf Pipe Line Co. which runs near the area from North and West Texas to the Gulf Coast. Later the two companies holding the block and well will lay their own line to the coast to give a direct outlet to the new field.

Emergency Proration Order

The Texas Railroad Commission has issued emergency proration and other orders regulating the development and production of this new area in the event that it becomes an oil producing field. Locations, according to specifications set out in these orders, are to be spaced 933 feet apart, and a minimum of 466 feet from lease lines. A special hearing for the area has been set for October 13. However, this meeting may be a little premature and have to be postponed if the test is not made this week.

Daily production for the week ending October 5 averaged 480,000 bbls., 40,000 bbls. per day under the daily average distribution.

Seeking Connections

One more refinery was added to the list of those shut down, making a total of 23, almost half of the number of plants in the field. It is reported that some of the lines which have been gathering oil for these plants are now being used for gathering and transporting oil for larger and some major companies, thereby netting the 5-cent gathering charge for the plant owners who cannot now operate their topping plants under present prices of oil and refined products.

Major purchasers in the field continue to take all connections possible, many connections being transferred from one company to another in the quest of more oil to serve the demands of the buyers. Daily average pipe line runs from the district averaged a little better than 467,200 bbls., a little over 3,000 bbls. per day gain over the previous week's runs. Refinery runs in the district have fallen to 48,590 bbls. per day whereas tank car shipments stepped up to 4,200 bbls. per day during the last period.

Locations and Completions

Locations in the field fell from 99 last week to 70 this week and completions fell from 75 to 63, after several weeks of seemingly frantic staking of locations and rapid drilling of wells for one reason or another, one belief being that the Government might issue orders holding down drilling. Some companies are merely drilling their leases to bring their per well average down to the level of the average for the field which is about one well to each 11 acres.

Salt Water Wells

The Railroad Commission is taking further cognizance of salt water wells in the field, Gordon Griffin, engineer for the commission, meeting with a group in Dallas on the afternoon of October 7 to reach some decision as to how to handle such wells. There are 50 wells on the west and northwest side of the field making such volumes of water as to require plugging back while 10 others should be entirely plugged for the good of surrounding leases and the rest of the field. Work will be begun at once. Making of such volumes of water in these wells not only creates a serious well flooding problem but will hasten the time when salt water disposal will become one of the main problems in the field.

Another interesting test has been started on the extreme southern end of the field in southern Rusk County. This test will be drilled by the American Liberty Oil Co. on the Arnold farm in the southwest corner of the Jesse Crawford Survey, one-quarter of a mile south of the nearest gasser which is Farrell's No. 1 Hammett.

Gulf Production Co. brought in another oiler on the extreme southeast corner of the field near the gas area. This well is the company's No. 2 Perry in the J. Henby Survey. It made slightly over 11 bbls. per hour. Total depth is 3,660 feet.

Wildcatting

There were three wildcat tests staked in various counties in the East Texas district during the week. Seward and others have derrick up on the L. J. Dearman farm in the J. T. Peavy Survey 2½ miles southeast of Zavalla, in Angelina County. Beckham and others have derrick up for test on the Wood farm in the A. D. Lagarza Survey in Ellis County, and Bill LaRue and others are building a derrick on the G. L. Smith farm in the Thomas Helms Survey, 1 mile southeast of Athens in Henderson County.

The Standard Oil Co. of Kansas has not spudded its No. 1 A. W. Johnson, located approximately 2 miles northeast of the Tide Water-Texas Seaboard Oil Co.'s potential discovery on the Monnig farm in southwest Anderson County, and may wait until the latter well is tested.

Bateman and others' No. 1 A. C. Carlisle in the Mary Elam Survey, Leon County, was abandoned this week at a total depth of 5,957 feet after several weeks of unsuccessful fishing for lost drill stem.

Shell Petroleum Corp. and others are making new hole on their No. 1 Beggs in the John Carter Survey. Latest report had the test at 5,619 feet in hard shale. A fishing job has also retarded progress of this test which is one of the most interesting in the district.

Another test is reported for Nacogdoches County. James W. Rich of Houston is erecting derrick on a tract owned by Sam Stripling and R. W. Hazelwood in the J. L. Ewing Survey, on a 5,000-acre block, 16 miles southeast of Nacogdoches near the Cherokee County line. The test is to go to 5,000 feet.

The Everett Drilling Co. has a rig up on the J. J. Goode farm in the W. Rose Survey for another test south of the Van Field, Van Zandt County. A former test drilled in this area proved dry. It apparently is too far south to produce from the same structure as the field.

East Central Texas Wildcats

Week Ending October 9

Company, well, farm name, section and block—	Remarks:
ANDERSON COUNTY	
Standard of Kansas' No. 1 A. W. Johnson, 565 ft. from N line and 420 ft. from E and W lines of 22.8-ac. tract, Simon Sanches Sur.	Derrick.
Tide Water Oil Co. and Seaboard Oil Co.'s No. 1 Long Lake Plantation, 3,700 ft. due S of S cor. of Tom Reeves estate, 97-ac. tract, Simon Sanches Sur.	Drilled to 5,468 ft.; plugging back to 5,290 ft.; will set csg. at 5,245 ft.
ANGELINA COUNTY	
J. M. Seward et al's No. 1 L. J. Dearman, 500 ft. from S and W lines of Dearman S 20-ac. tract, 2½ miles SE of Zavalla, J. T. Peavy Sur.	Derrick.
BOWIE COUNTY	
R. W. Lynn and W. R. Rolfe's No. 1 Mrs. R. D. Hart, 330 ft. out of NE cor. of Hart 20-ac. tract, 1 mile E of Nash, Thomas Price Sur.	Location.
ELLIS COUNTY	
Beckham et al's No. 1 L. S. R. Wood, 150 ft. from N line and 330 ft. from E line of Wood 186-ac. tract, A. D. Lagarza Sur.	Derrick.
FRANKLIN COUNTY	
Van Emon et al's No. 1 O. S. Maxton, 910 varas W and 910 varas S of NE cor. of survey, John Brown Sur.	Derrick.
GREGG COUNTY	
Clover Leaf Petroleum Co.'s No. 1 M. T. Cole, 209 ft. from N line and center of E and W lines of survey, A. Parks Sur.	Rig up.
Cranfill & Reynolds' No. 2 Lee, 3,950 ft. from S line and 3,280 ft. from N line of survey, John Ruddle Sur.	Waiting on cmt. to set; T.D. 3,477 ft.
Elliott et al's No. 1 Benson, 175 ft. from S line and center E and W lines of tract, W. P. Chisum Sur.	Location.
Magnolia Petroleum Co.'s No. 6 Clem Jones, 4,710 ft. from S line and 370 ft. from W line of survey, G. W. Hooper Sur.	Location.
J. S. Nelson et al's No. 1 Negro Lodge, 3,880 ft. from S line and 4,710 ft. from W line of survey, M. V. Winkle Sur.	Rig up and S.D.
Sneed et al's No. 3 G. Davis, 175 ft. from S line and 5,980 ft. from E line of survey, W. P. Chisum Sur.	Testing; T.D. 3,604 ft.
A. W. Tarrant's No. 2 Sabine River, Tract No. 1, 430 ft. W and 540 ft. N of SE cor. of M. Dillard Sur.	Drlg. 1,525 ft.

(Continued on Page 64)

COMPLETIONS IN EAST TEXAS

North Gregg County

Arcadia Refining Co.'s No. 1 R. M. Wood, location abandoned. Atlantic Oil Producing Co.'s No. 57 Judge, top sand 3,500 feet, initial production 75 bbls. per hour through open tubing, total depth 3,532 feet; No. 45 Moore, top sand 3,524 feet, initial production 85 bbls. per hour through open tubing, total depth 3,557 feet; No. 5-B Tooke, top sand 3,540 feet, initial production 80 bbls. per hour through open tubing, total depth 3,617 feet; No. 13 Turner, top sand 3,543 feet, initial production 85 bbls. per hour through open tubing, total depth 3,610 feet; No. 3 B. C. Todd, top sand 3,503 feet, initial production 75 bbls. per hour through open tubing, total depth 3,570 feet. Day and Armstrong's No. 2 E. L. Walker, top sand 3,599 feet, initial production 75 bbls. per hour through open tubing, total depth 3,606 feet. East Texas Oil & Refining Co.'s No. 9 A. Christian, top sand 3,664 feet, initial production 49 bbls. in 20 minutes through tubing, total depth 3,698 feet; No. 3 W. Christian, top sand 3,603 feet, initial production 21 bbls. in 20 minutes through tubing, total depth 3,635 feet; No. 12 Hindman-Guy, top sand 3,619 feet, initial production 30 bbls. in 20 minutes through open tubing, total depth 3,655 feet. Fain and McGaha's No. 4 Rose Corbin, top sand 3,550 feet, initial production 90 bbls. per hour through open tubing, total depth 3,597 feet. Faith Oil Corp.'s No. 5 J. C. Barnett, top sand 3,634 feet, initial production 70 bbls. per hour through tubing, total depth 3,656 feet. Fleming and Kimble's No. 5 J. Barnes, top sand 3,685 feet, initial production 100 bbls. per hour through open tubing, total depth 3,720 feet. Lonnie Glasscock's No. 1 Whatley, top sand 3,551 feet, initial production 50 bbls. per hour through three-quarters inch tubing choke, total depth 3,657 feet. Gulf Production Co.'s No. 46 Judge, top sand 3,520 feet, initial production 70 bbls. per hour through open tubing, total depth 3,546 feet.

Humble Oil & Refining Co.'s No. 9 J. F. Boles, top sand 3,599 feet, initial production 15 bbls. in one-quarter hour through open tubing, total depth 3,635 feet; No. 9 A. Carter, top sand 3,615 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,685 feet. Magnolia Petroleum Co.'s No. 8 G. W. Ritchie, top sand 3,560

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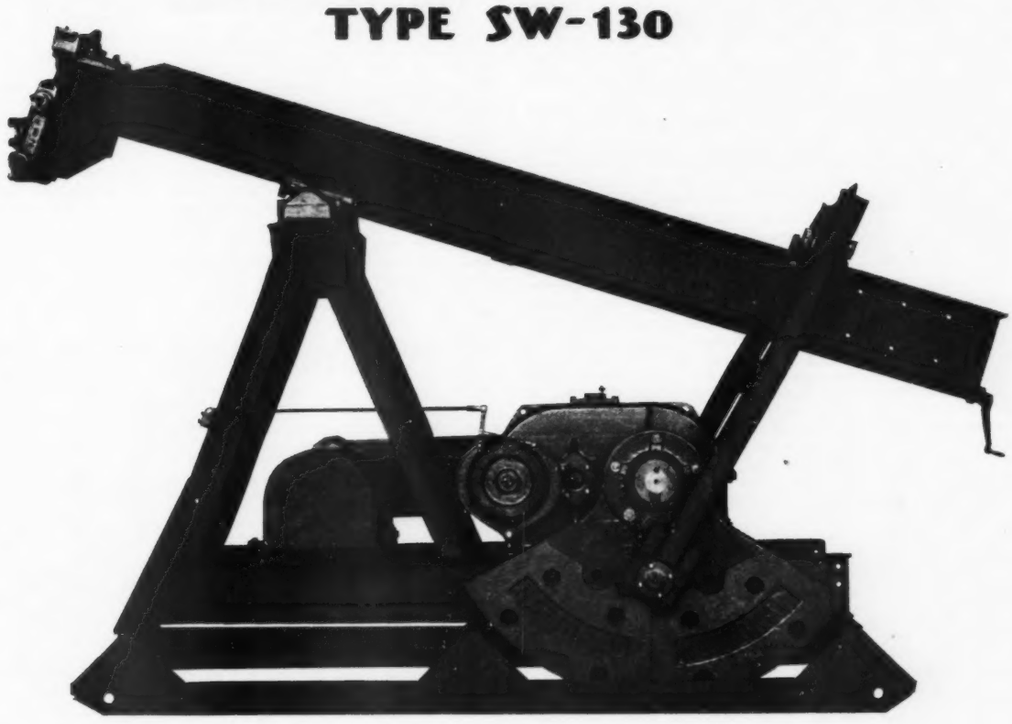

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Bulletin No. 332-A free on request

THE NATIONAL SUPPLY COMPANIES

feet, initial production 96 bbls. per hour through open tubing, total depth 3,598 feet. B. F. Phillips' No. 3-B League, top sand 3,621 feet, initial production 76 bbls. per hour through open tubing, total depth 3,637 feet. Sabinas Oil Corp.'s No. 4 A. J. C. Falvey, top sand 3,692 feet, initial production 385 bbls. per hour through casing, total depth 3,720 feet. Selby Oil & Gas Co.'s No. 17-B Snavely heirs, top sand 3,570 feet, initial production 63 bbls. in one-half hour through 1-inch tubing choke, total depth 3,588 feet; No. 24-B Snavely heirs, top sand 3,576 feet, initial production 62 bbls. in one-half hour on 1-inch tubing choke, total depth 3,590 feet. Shano Oil Corp.'s No. 4 Smith, top sand 3,545 feet, initial production 50 bbls. per hour through open tubing, total depth 3,567 feet. Shell Petroleum Corp.'s No. 10 H. Hampton, top sand 3,617 feet, initial production 28 bbls. in one-half hour through open tubing, total depth 3,678 feet; No. 13 Hampton, top sand 3,660 feet, initial production 20 bbls. in one-half hour through open tubing, total depth 3,714 feet. Western State Royalty Co.'s No. 2 Doby, top sand 3,493 feet, initial production 75 bbls. per hour through open tubing, total depth 3,535 feet. A. D. Whiteman's No. 1 M. C. Salter, top sand 3,714 feet, initial production 100 bbls. per hour through open tubing, total depth 3,731 feet.

South Gregg County

East Texas Oil & Refining Co.'s No. 5 E. Mitchell, top sand 3,572 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,624 feet. Jones & O'Brien's No. 13 Hughey-Ross, location abandoned. Rhoads Drilling Co.'s No. 22 Sabine River, top sand 3,516 feet, initial production 50 bbls. in one-half hour through open tubing, total depth 3,538 feet; No. 28 Sabine River, top sand 3,535 feet, initial production 50 bbls. in one-half hour through open tubing, total depth 3,560 feet. P. H. Stanford's No. 1 Norch Chapel, location abandoned. Sun Oil Co.'s No. 5 J. T. Elder, top sand 3,509 feet, initial production 65 bbls. per hour through open tubing, total depth 3,563 feet; No. 9 J. Rollins, top sand 3,520 feet, initial production 53 bbls. per hour through 1½-inch tubing choke, total depth 3,554 feet.

North Rusk County

C. M. Cope and others' No. 1 C. H. Hedge, top sand 3,565 feet, initial production 20 bbls. in five hours flowing by heads, total depth 3,620 feet. Humble Oil & Refining Co.'s No. 83 Crim, top sand 3,575, initial production 106 bbls. per hour through three-quarters inch tubing choke, total depth 3,590 feet; No. 6 W. D. Peterson, top sand 3,585 feet, initial production 20 bbls. per hour through three-quarters inch tubing choke, total depth 3,678 feet; No. 7 J. Wooley, top sand 3,654 feet, initial production 75 bbls. per hour through open tubing, total depth 3,731 feet. O'Hearn Oil Co.'s No. 4 M. M. McMillan, top sand 3,656 feet, initial production 65 bbls. per hour through open tubing, total depth 3,676 feet. Woodley Petroleum Co.'s No. 5-A Joe Lee, top sand 3,614 feet, initial production 37 bbls. in one-quarter hour through open tubing, total depth 3,624 feet.

South Rusk County

American Liberty Oil Co.'s No. 5-C Young, top sand 3,633 feet, initial production 95 bbls. per hour through open tubing, total depth 3,578 feet. Collins-Stroube and Stroube's No. 6 L. J. Pinkston, top sand 3,644 feet, initial production 50 bbls. per hour through open tubing, total depth 3,684 feet. East Texas Oil & Refining Co.'s No. 6 O. H. Grissom, top sand 3,668 feet, initial production 22½ bbls. in one-quarter hour through tubing, total depth 3,675 feet. Humble Oil & Refining Co.'s No. 5 S. A. Glover, top sand 3,674 feet, initial production 60 bbls. per hour through open tubing, total depth 3,749 feet; No. 8 Pitner, top sand 3,660 feet, initial production 70 bbls. per hour through open tubing, total depth 3,747 feet; No. 32-A R. E. L. Silvey, top sand 3,715 feet, initial production 66 bbls. per hour through three-quarters inch tubing choke, total depth 3,787 feet; No. 13 C. J. Thompson, top sand 3,680 feet, initial production 75 bbls. through open tubing, total depth 3,719 feet. H. L. Hunt Production Co.'s No. 7 Wooley, top sand 3,656 feet, initial production 20 bbls. in three hours pumping, total depth 3,754 feet.

Mid-Kansas Oil & Gas Co.'s No. 52 M. M. Cross, top sand 3,645 feet, initial production 92 bbls. per hour through open tubing, total depth 3,662 feet; No. 49 Grissom, top sand 3,649 feet, initial production 86 bbls. per hour through open tubing, total depth 3,662 feet; No. 50 Grissom, top sand 3,651 feet, initial production 98 bbls. per hour through open tubing, total depth 3,655 feet. Texas Co.'s No. 12 First Guaranty State Bank, top sand 3,726 feet, initial production 90 bbls. per hour through open tubing, total depth 3,760 feet. Tide Water Oil Co.'s No. 4 J. W. Flannigan, top sand 3,638 feet, initial production 96 bbls. per hour through open tubing, total depth 3,704 feet.

Smith County

B. G. Byers and Wolf's No. 1 Jackson, top sand 3,751 feet, initial production 65 bbls. per hour through open tubing, total depth 3,752 feet. Gant and Wegener's No. 3 Stone, top sand 3,784 feet, initial production 75 bbls. per hour through open tubing, total depth 3,787 feet. Stanley Lewis and Suni's No. 2 T. O. Wright, top sand 3,697 feet, initial production 70 bbls. per hour through open tubing, total depth 3,715 feet. Long Drilling Co.'s No. 3 G. R. Turner, top sand 3,786 feet, initial production 75 bbls. per hour through open tubing, total depth 3,790 feet. Mid-Kansas Oil & Gas Co.'s No. 23 J. H. Sharp, top sand 3,697 feet, initial production 76 bbls. per hour through open tubing, total depth 3,699 feet. Sutton and Hawkins' No. 4 Church Lot, top sand 3,803 feet, initial production 50 bbls. per hour through open tubing, total depth 3,805 feet.

Upshur County

Feazel and Davenport's No. 3 William Phillips, top sand 3,630 feet, initial production 65 bbls. per hour through open tubing, total depth 3,644 feet. M. T. Flannigan and others' No. 2 Flannigan, top sand 3,646 feet, initial production 75 bbls. per hour through open tubing, total depth 3,658 feet. Humble Oil & Refining Co.'s No. 22 I. D. Smith, top sand 3,617 feet, initial production 33 bbls. per hour through three-quarters inch tubing choke, total depth 3,625 feet. Lester and Duffield's No. 6 L. Graves, top sand 3,658 feet, initial production 80 bbls. per hour through open tubing, total depth 3,665 feet. Jim Rush's No. 1 W. H. Reed, top sand 3,685 feet, initial production 60 bbls. per hour, 25 per cent salt water, total depth 3,709 feet. Stroube and Stroube's No. 5 R. J. Mackey, top sand 3,599 feet, initial production 65 bbls. per hour through open tubing, total depth 3,604 feet. Travis and Weir's No. 2 L. P. League, top sand 3,631 feet, initial production 80 bbls. per hour through open tubing, total depth 3,640 feet.

WILDCAT COMPLETIONS

Leon County

Ed Bateman's No. 1 A. C. Carlyle, top Pecan Gap 4,075 feet, base 4,110 feet, top Austin chalk 5,147 feet, base 5,572 feet, top Woodbine sand 5,892 feet, top Gober 4,792 feet, junked and abandoned, total depth 5,957 feet (Mary Elem Survey).

Repressuring Wells With Air and Gases Is Successful

(Continued from Page 9)

producing wells are taken by field operators from time to time with the help of the pumpers. All data, such as barrels produced per week, gas input volume and pressure, cumulative production per week, barrels per day per well are plotted so that a constant inspection control of property may be maintained. This is a procedure that may be followed easily by a prospective repressure operator and it will serve the purpose well with little increased expense."

Not all undertakings prove successful, however, and Mr. Little recounted an experience with the Speechley sand in Butler County. New wells have been drilled in this sand and placed in ideal condition for pressure purposes. Special equipment for compressing the air to repressure this sand and pressures as high as 1,100 pounds were resorted to, without success. The conclusion was that operations on this sand should be abandoned unless there should be devised some means to use water for flooding purposes in this sand similar to use of water in the Bradford region. Water flooding would be a final gesture before abandonment.

Two Immiscible Solvents Used in Extraction Process

(Continued from Page 11)

to produce a full line of motor oil is a matter of some interest. A portion of the paraffinic oil produced from the Ranger-Burbank residuum as shown in Table 1 was reduced by distillation to a bottom having a viscosity of 119 seconds Saybolt at 210° F. The resulting overhead had a viscosity of 47 seconds Saybolt at 210° F. These two stocks were then blended in various proportions so as to produce a full line of motor lubricants. The characteristics of both fractions resulting from the distillation and of the various oils resulting from the blend of the two stocks are shown in Table 3.

TABLE 3—MOTOR OIL BLENDS PREPARED FROM RANGER-BURBANK LONG RESIDUUM SOLVENT TREATED BY THE DUO-SOL PROCESS AND PERCOLATED 3:1 THROUGH NO. 6 ATTAPULGUS CLAY

	Over-head	Re-duced	S.A.E. 20	S.A.E. 30	S.A.E. 40	S.A.E. 50	S.A.E. 60
Gravity, °A.P.I.	30.3	27.2	29.3	28.5	28.5	28.0	27.2
Flash, °F.	415	525	430	445	445	470	490
Fire, °F.	475	610	490	505	505	525	580
Viscosity at 100° F.	190	1,653	370	565	632	795	1,292
Viscosity at 210° F.	47	119	58.6	68.4	72	82.4	106
Viscosity index	105	97	105	101	100	102	101
Color—Lovibond	1	50	20	35	35	41	56
Color—N.P.A.	1½	4½	3½	4	4	4	4½
Viscosity-gravity constant	.819	.807	.808	.809	.808	.808	.809
C.C.	.01	.31	.11	.18	.18	.26	.31

Yields Are High

It has been stated that the process was responsible for a high yield of paraffinic oil. This fact has been exemplified by a study of the characteristics of the naphthenic oil which has been separated from the original charging stock. For this purpose the naphthenic oil separated from the Ranger-Burbank residuum which in itself is highly paraffinic, was given particular study. The mixture of asphalt and naphthenic oil as discharged from the process had a specific gravity of 1.045. Six and one-half per cent of this tar was taken overhead by distillation so as to produce a clean cut naphthenic oil free from asphalt. As a result of this distillation the asphalt had a penetration of 50. The characteristics of the overhead cut were then determined and are tabulated as follows:

Specific gravity	1.042
Flash, Cleveland open cup	250
Saybolt viscosity at 130	257
Saybolt viscosity at 210	51
Viscosity index	Below —50
Pour test	25
Carbon residue	31

Note the pour test of the oil because of extremely high viscosity at low temperatures.

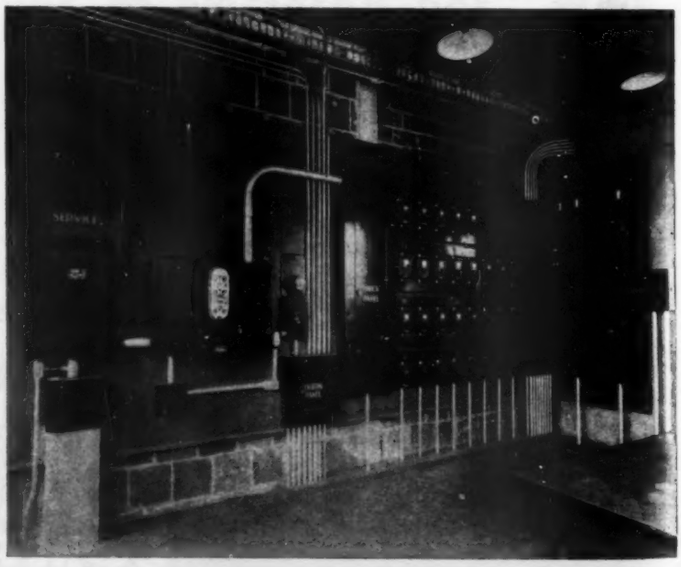
It is felt that when it is considered that a material as described above representing the light ends of the naphthenic fraction which has been separated from a stock which is highly paraffinic, that the results clearly indicate that the process has produced from the stock all of the paraffinic oil that can be got out of it.

Reduces Treating Cost

One of, if not the most important, feature of the process comes from the fact that acid treating in connection with the production of lubricating oil is completely eliminated. It is not only the elimination of the cost of acid, the loss to sludge, the subsequent neutralization, and all the various inconveniences coincident to acid treating, that is important but also the fact that it eliminates a particularly difficult problem in the case of solvent extracted oils. The solvent extracted oils, if fully extracted, are characteristic in all of their properties to Pennsylvania oil. If the solvent extraction process does not produce a color sufficiently good to eliminate acid treating, it is particularly difficult to acid treat the paraffinic oil produced. Acids of high concentration have to be used. The quantity of acid with relation to the amount of tar removed is extremely high so that with the exception of the viscosity index, much of the advantage normally credited to solvent extraction is lost if acid treating is necessary. Duo-Sol oils may be finished with only a clay treatment.

H. H. CHAMPLIN, JR., DIES

ENID, Okla., Oct. 9.—H. H. Champlin, Jr., 20 years old, son of Mr. and Mrs. H. H. Champlin, died at the family residence here early today. He had been ill for several months.



Panel board for centralized control of pilot plant operations

California Field Operations for August, 1933

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for August amounted to 15,536,841 bbls., an average of 501,188 bbls. per day. This is an increase of 12,774 bbls. per day over July production.

CRUDE PETROLEUM PRODUCTION
(Figures of Production and Stocks are in barrels of 42 gallons)

	Bbls. per month	Daily average Aug., 1933	July, 1933	Aug., 1932
Group No. 1:				
Coalinga	324,746	10,476	10,756	10,844
Elk Hills	399,303	12,881	12,869	12,286
Fruitvale	134,983	4,354	4,242	4,892
Kern River	281,524	9,081	8,854	8,927
Kettleman Hills—Middle Dome	20,741	669	515	.....
Kettleman Hills—North Dome	1,915,785	61,800	62,104	60,287
Lost Hills-Belridge	235,349	7,592	7,198	5,615
McKittrick	53,397	1,722	1,717	1,852
Midway-Sunset	1,471,004	47,452	46,257	49,052
Mountain View	13,242	427	578	.....
Mount Poso	253,169	8,167	9,289	8,177
Round Mountain	91,383	2,948	2,646	3,174
Wheeler Ridge	14,365	463	462	507
Group No. 2:				
Capitan	567	18	13	.....
Elwood	405,566	13,083	14,059	13,879
Rincon	61,100	1,971	2,013	1,526
San Miguelito	37,028	1,194	1,134	1,185
Santa Barbara	24,021	775	737	586
Santa Maria	102,386	3,303	3,211	3,158
Summerland	2,950	95	86	114
Ventura Avenue	1,106,359	35,657	32,945	31,566
Ventura-Newhall	97,871	3,157	3,278	3,539
Watsonville	1,860	60	60	62
Group No. 3:				
Coyote	310,648	10,021	10,155	10,265
Domingues	632,756	20,444	20,097	17,605
Fullerton (Brea Olinda)	236,209	7,620	7,501	8,060
Huntington Beach	1,505,365	48,560	47,327	22,172
Inglewood	356,523	11,501	11,570	13,483
Lawndale	6,508	220	208	300
Long Beach	2,288,929	73,836	74,513	72,596
Los Angeles-Salt Lake	27,160	876	883	1,038
Montebello	182,780	5,896	5,403	6,045
Newport	.....	.....	.....	.....
Playa Del Rey	342,596	11,052	11,310	14,695
Potrero	10,152	327	303	1,313
Richfield	232,159	7,489	6,950	6,203
Rosecrans	95,370	3,076	2,982	2,184
Santa Fe Springs	1,658,438	53,498	53,788	58,790
Seal Beach	356,851	11,511	11,638	12,318
Torrance	208,549	6,727	6,302	6,205
Whittier	36,848	1,189	1,131	1,107
Total	15,536,841	501,188	488,414	478,708
July	15,140,828	488,414	.....	.....
Increase	396,013	12,774	.....	.....

TOTAL STOCKS HELD BY CALIFORNIA OIL COMPANIES, BOTH INSIDE AND OUTSIDE THE UNITED STATES

	Aug. 31, 1933	July 31, 1933	Aug. stock increases	Aug. 31, 1932
Heavy crude and all grades of fuel, gas and Diesel oils	100,889,883	100,975,055	*85,172	101,621,925
Refinable crude	37,154,302	36,539,087	615,215	40,054,558
Finished gasoline, engine distillate and natural gasoline	14,771,372	14,483,544	287,828	16,415,703
Crude gasoline and naphtha distillates	3,558,897	3,816,737	*257,840	4,818,520
All other stocks	†7,612,379	†7,571,778	40,601	†7,616,007
Total all stocks	163,986,833	163,386,201	600,632	170,526,713

*Decrease. Bbls. of coke included †648,462 ‡649,409 §660,386

OIL FIELD DEVELOPMENT

	New rigs up	Active drilling	Producers completed	Daily initial output	Active producing	Abandoned wells Drillers	Abandoned wells Producers
Group No. 1:							
Coalinga	..	...	...	.....	627	..	..
Elk Hills	..	...	...	.....	204	..	..
Fruitvale	2	3	1	75	57	..	..
Kern River	..	...	...	.....	998	2	..
Kettleman Middle Dome	..	...	...	.....	1	..	..
Kettleman North Dome	3	12	...	.....	42	..	..
Lost Hills-Belridge	..	3	...	.....	149	..	..
McKittrick	..	...	...	.....	114	..	..
Midway-Sunset	2	4	...	.....	1,805	..	..
Mountain View	2	6	...	.....	1	..	..
Mount Poso	4	4	1	473	100	..	..
Round Mountain	1	3	...	.....	23	..	..
Wheeler Ridge	..	...	...	.....	34	..	..
Group No. 2:							
Capitan	..	...	...	.....	2	..	..
Elwood	1	2	...	.....	44	..	..
Rincon	..	...	...	.....	2	..	..
San Miguelito	..	1	...	.....	2	..	..
Santa Barbara	1	1	...	.....	13	..	..
Santa Maria	..	...	...	.....	162	2	1
Summerland	..	...	...	.....	63	..	..
Ventura Avenue	2	7	...	.....	142	1	..
Ventura-Newhall	4	10	1	25	159	..	..
Watsonville	..	...	...	.....	7	..	..
Group No. 3:							
Coyote	..	2	2	1,660	38	..	..
Domingues	4	5	2	2,235	59	..	..
Fullerton	..	...	...	.....	352	..	..
Huntington Beach	21	30	2	3,810	380	..	1
Inglewood	..	...	...	.....	315	..	..
Lawndale	..	...	...	.....	8	..	..
Long Beach	4	23	7	1,133	975	1	1
Los Angeles-Salt Lake	..	...	...	.....	170	..	2
Montebello	..	1	1	965	169	..	..
Newport	..	...	...	.....	.....	..	..
Playa Del Rey	..	3	...	.....	182	..	2
Potrero	..	...	...	.....	11	1	..
Richfield	3	7	...	.....	177	..	..
Rosecrans	..	...	...	.....	69	..	..
Santa Fe Springs	1	1	...	.....	527	..	2
Seal Beach	..	...	...	.....	113	..	..
Torrance	..	...	...	.....	390	..	..
Whittier	..	...	...	.....	140	..	..
Miscellaneous drilling	3	28	...	.....	.....	7	..
Group No. 4:							
Buttonwillow gas field	..	...	...	.....	.....	..	..
Dudley Ridge gas field	..	1	...	.....	.....	..	..
Goleta gas field	..	1	...	.....	.....	1	..
August	55	148	17	20,381	9,110	15	9
July	37	134	23	25,804	9,008	17	20
Increase	21	24	*5	*15,423	194	*2	*11
Average for year 1932	18	108	15	13,069	8,928	16	14
Average for year 1931	23	207	21	30,270	8,911	20	15
Average for year 1930	80	434	48	48,710	9,632	21	27

*Decrease.

Wildcat Operations in West Texas

(Continued from Page 59)

Cranfill & Reynold's No. 3 W. M. Flannigan, 165 ft. S of N line and 330 ft. W of E line of W half Sec. 200, Blk. 1, B.B.B.&C.Ry. Sur. ... Drlg. 1,325 ft.
Cranfill & Reynold' No. 3 T. Willingham, Sec. 199, Blk. 1, B.B.B.&C.Ry. Sur. ... Drlg. 2,475 ft.
Merry Bros. and Per.ni's No. 1 J. J. Steele, 330 ft. E and 150 ft. N of SW cor. NE Sec. 210, B.B.B.&C. R.R. Sur. ... Location.
Mid-Continent Petroleum Corp.'s No. 1 A. E. Pardue, 660 ft. N of S line and 330 ft. W of E line of NW Sec. 202, Blk. 1, B.B.B.&C.Ry. Sur. ... T.P. 3,090 ft.
Roeser & Pendleton's No. 1 T. E. Hill, 660 ft. N of S line, 330 ft. E of W line of N half NW Sec. 193, Blk. 1, B.B.B.&C.Ry. Sur. ... T.P. 3,093 ft.; bldg. derrick.
Southern's No. 1 King, 660 ft. from N and 330 ft. from W line of SW Sec. 193, B.B.B.&C. Sur. ... Moving in.
Southern Oil Co.'s No. 1-A Pardue, 2,310 ft. from S and 990 ft. from E lines of Sec. 202, B.B.B.&C. Sur. ... T.D. 2,654 ft.
Texas Co.'s No. 3 T. A. Jean, 165 ft. N of S line and 330 ft. E of W line of E half Sec. 201, Blk. 1, B.B.B.&C.Ry. Sur. ... Set csg. 1,985 ft.
Texas-Inland Oil Co.'s No. 1 First National Bank of Hamlin, 590 ft. N and 330 ft. W of SE cor. of W half NE Sec. 191, B.B.B.&C.R.R. Sur. ... Location.

GAINES COUNTY

R. H. Gill et al's No. 1 Crews, 1,320 ft. from S and 1,320 ft. from W line of Sec. 9, Blk. A-20, P.S.L. Sur. ... Location.

GLASSCOCK COUNTY

Schermerhorn Oil Co.'s No. 6 Kloh, 330 ft. from S line and 1,980 ft. from E line of Sec. 13, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ... Drlg. 2,316 ft.
Tribal Oil Co.'s No. 5-B Edwards, 330 ft. from S line and 330 ft. from E line of Sec. 6, Blk. 33, Twp. 2s, T.&P. Sur. ... Drlg. 620 ft.
H. O. Wootin's No. 2-A W. P. Edwards, 660 ft. from S line and 660 ft. from E line of Sec. 17, T.&P.R.R. Sur., Blk. 33, Twp. 2s ... Drlg. 118 ft.

HOWARD COUNTY

Continental Oil Co.'s No. 4 Eason, 2,310 ft. from S line and 1,884 ft. from W line of Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ... Drlg. 1,681 ft.
Continental Oil Co.'s No. 8 Settles, 1,980 ft. from N line and 1,625 ft. from W line of Sec. 138, Blk. 29, W.&N.W. Sur. ... Drlg. 858 ft.
Donnelly & Norman's No. 1 Magnolia Petroleum Co. (Bell), 330 ft. from N line and 330 ft. from W line of the N half of SW of Sec. 12, T.&P.R.R. Sur., Blk. 30, Twp. 1s ... Drlg. 1,940 ft.
S. B. Dorn et al's No. 1 J. P. Davis, 2,310 ft. from N line and 2,310 ft. from E line of Sec. 2, T&P.R.R. Sur., Blk. 30, Twp. 1s ... Rig up.
Group No. 1 Oil Co. and Continental Oil Co., 2,640 ft. from N line and 1,980 ft. from E line of Sec. 5, T.&P.R.R. Sur., Blk. 32 ... Spudding 40 ft.
L. C. Harrison et al's No. 2 Texas Land & Mortgage Co., 2,310 ft. from E line and 330 ft. from the S line of Sec. 4, T.&P.R.R. Sur., Blk. 30, Twp. 1s ... Location.
Merrick & Lamb's No. 8 Chalk, 1,650 ft. from N line and 2,310 ft. from W line of Sec. 125, Blk. 29, W.&N.W. Sur. ... S.D. 275 ft.
Joe Rusk et al's No. 2 G. M. Dodge Estate, 330 ft. from N line and 2,310 ft. from the E line of Sec. 9, H.&T.C.R.R. Sur., Blk. 30, Twp. 2s ... Location.
W. A. Sheets Oil Co.'s No. 1 J. L. Wright, 1,630 ft. from S line and 1,980 ft. from W line of Sec. 41, T.&P. R.R. Sur., Blk. 33, Twp. 1s ... S.D. 75 ft.
Sinclair Prairie Oil Co.'s No. 9 Dodge, 810 ft. from N line and 1,625 ft. from W line of Sec. 11, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ... Location.
Southern Oil Co.'s No. 1 Denman, 2,310 ft. from N line and 330 ft. from W line of Sec. 10, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ... Bldg. derrick.
Southern Oil Co.'s No. 1 Denman, 1,650 ft. from N line and 330 ft. from W line of Sec. 14, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ... Bldg. derrick.
Ungren & Frazier's No. 1 Davis, 330 ft. from S line and 990 ft. from W line of Sec. 2, Blk. 30, Twp. 1s, T.&P. Sur. ... Location.

IRION COUNTY

R. D. Covington's No. 1 Mitchell, 150 ft. from S line and 150 ft. from W line of Sec. 724, C. Wimsch Sur. ... Drlg. 900 ft.
Perry Fox's No. 1 Reach, 170 ft. E and 450 ft. S of the most southerly NW cor. of Sec. 1,026, H.E.&W.T. Sur. ... Drlg. 340 ft.
P. A. Johnson's No. 1 Townsite, Blk. 25, C. Schlote Sur., 150 ft. from S and W of Blk. ... Prepare to plug; T.D. 1,400 ft.

JONES COUNTY

Dyer's No. 1 Odom, 200 ft. from S and 170 ft. from W of N 320 acres, G. Zumwalt Sur. ... T.D. 2,040 ft.
Roeser & Pendleton's No. 1 W. H. Evans, 300 ft. N and 9,300 ft. E of SW cor. of E 101 acres of N 202 acres of Sec. 4, Blk. 15, T.&P.R.R. Sur. ... Location.

LOVING COUNTY

R. L. Allen's No. 1 fee, 4,290 ft. from NE line, 330 ft. from SE line, Sec. 32, H.&T.C. Sur. ... Location.
R. L. Allen's No. 2 fee, 4,290 ft. from NE line, 990 ft. from SE line, Sec. 32, Blk. 33, H.&T.C. Sur. ... Location.
R. L. Allen's No. 3 fee, 4,290 ft. from NE line, 990 ft. from NW line, Sec. 32, Blk. 33, H.&T.C. Sur. ... Location.
R. L. Allen's No. 4 fee, 4,290 ft. from NE line, 330 ft. from NW line, Sec. 32, Blk. 33, H.&T.C. Sur. ... Location.
Eppenauer Drlg. Co.'s No. 1-C Allen, 330 ft. from NW line, 2,310 ft. from SW line, Sec. 90, Blk. 1, W.& NW Sur. ... Location.
Eppenauer Drlg. Co.'s No. 1-A Victor, 330 ft. from SW and 325 ft. from SE of NW of N half Sec. 4, Blk. 2, W.&N.W. Sur. ... Rigging up standard tools.

PECOS COUNTY

M. E. Black et al's No. 1 E. E. Powell et al, 150 ft. from NE line and 150 ft. from SE line of Sec. 102, H.&G.M.R.R. Sur., Blk. 10 ... Location.
M. D. Bryan's No. 1 Robertson, 375 ft. S and 150 ft. E from NW cor. of Robertson Sur. (this well is east offset to Mid-Kansas Oil & Gas Co.'s No. 23 Smith-Taylor) ... Straightening crooked hole; T.D. 438 ft.
Culberson Bros.'s No. 15-B Monroe, 725 ft. from N line and 1,380 ft. from E line of Sec. 39, Blk. 194, G.C.&S.F.R.R. Sur. ... Location.
Easter-McCurdy's No. 1-A Smith, 840 ft. from S line and 1,030 ft. from E line of Sec. 27, Blk. 149, G.C.&S.F. Sur. ... Location.
Humble Oil & Refining Co.'s No. 1 White, Baker, 1,320 ft. from N and E lines of Sec. 44, Blk. Z, T.C. Sur. ... T.D. 5,159 ft.; csg. parted 6 jts. from bottom.
Kemper & Kimberlin et al's No. 2 D. B. Gregg et al, 2,490 ft. from NW line and 1,470 ft. from NE line of Sec. 101, H.&G.M.R.R. Co. Sur., Blk. 10 ... Location.
Mid-Kansas O. & G. Co.'s No. 18 Smith-Taylor, 1,296 ft. from S line, 1,320 ft. from W line, Sec. 33, G. C.&S.F. Sur., Blk. 194 ... Location.
Mid-Kansas Oil & Gas Co.'s No. 21 Smith-Taylor, 1,700 ft. from S line and 275 ft. W of northerly NW cor. of Fred Turner, Jr., Sur., but located in Sec. 32, Blk. 194, G.C.&S.F. Sur. ... Running csg. 1,170 ft.

Mid-Kansas Oil & Gas Co.'s No. 22 Smith-Taylor, 250 ft from S line and 324 ft. from W line of NW cor. of Fred Turner, Jr., Sur. No. 2, but located in Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 645 ft.

Mid-Kansas Oil & Gas Co.'s No. 23 Smith-Taylor, 332 ft. S of N line of Sec. 33 and 160 ft. from W line of Robertson Sur., Sec. 33, Blk. 194, G.C.&S.F.R.R. Sur... Cmtd. csg. at 800 ft.

Mid-Kansas Oil & Gas Co.'s No. 33-A I. G. Yates, 205 ft. from N line and 350 ft. from W line of NW cor. of Fred Turner, Jr., Sur. No. 3, but located in I. G. Yates Sur., A-8195 ..... Cmtd. csg. at 1,325 ft.

Mid-Kansas Oil & Gas Co.'s No. 34-A I. G. Yates, 150 ft. from N line and 250 ft. from E line of NW cor. of Fred Turner, Jr., Sur. No. 4, but located in I. G. Yates Sur., A-8195. ..... T.P. 1,105 ft.; flowed 35 bbls. of oil per hr.; T.D. 1,259 ft.

Mid-Kansas Oil & Gas Co.'s No. 35-A, 250 ft. from N line and 324 ft. from E line of NW cor. of Fred Turner, Jr., Sur. No. 2, but located in I. G. Yates Sur., A-8195. ..... Bldg. road.

Sproles & O'Neal's (rec.) No. 2-A Fred Turner, Jr., 196 ft. from N line, 300 ft. from W line of Fred Turner, Jr., Sur. No. 1 ..... Location.

Sproles & O'Neal's (rec.) No. 4-A Fred Turner, Jr., 1,640 ft. from N line, 250 ft. from W line of Fred Turner, Jr., Sur. No. 1 ..... Drlg. 1,019 ft.

Sproles & O'Neal's (rec.) No. 5-A Fred Turner, Jr., 250 ft. from N, 250 ft. from W of C SE cor. of Fred Turner, Jr., Sur. No. 1 ..... Location.

Sproles & O'Neal's No. 7-A Fred Turner, 280 ft. from S line, 250 ft. from W line of Fred Turner, Jr., Sur. No. 1 ..... Location.

Sproles & O'Neal's No. 8-A Fred Turner, Jr., 560 ft. from S line, 550 ft. from E line of Fred Turner Jr., Sur. ..... Location.

Sproles & O'Neal's No. 1-B Fred Turner, Jr., 250 ft. from N line, 308 ft. from E line of Fred Turner, Jr., ... Drlg. 1,345 ft.

Sproles & O'Neal's No. 2-B Fred Turner, Jr., 250 ft. from N line, 305 ft. from W line of Fred Turner, Jr., Sur. ..... Set csg. at 1,143 ft.

Sproles & O'Neal's No. 3-B Fred Turner, Jr., 356 ft. from S line, 350 ft. from W line of Fred Turner, Jr., Sur. ..... Location.

Sproles & O'Neal's No. 4-B Fred Turner, Jr., 717 ft. from S line, 250 ft. from E line of Fred Turner, Jr., Sur. No. 2 ..... Location.

Sproles & O'Neal's No. 1-C Fred Turner, 250 ft. from N line, 250 ft. from W line of Fred Turner, Jr., Sur. ..... Location.

Sproles & O'Neal's No. 2-C Fred Turner, Jr., 205 ft. from N line, 205 ft. from E line of Fred Turner, Jr., Sur. No. 3 ..... Drlg. 1,265 ft.

Sproles & O'Neal's No. 1-D Fred Turner, Jr., 150 ft. from N line, 250 ft. from W line of Fred Turner Sur. No. 41 ..... Tested 21 bbls. per hour; T.D. 1,266 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 12-C University, 928 ft. from N, 740 ft. from E line of Sec. 12, Blk. 2, University land ..... Drlg. 7,928 ft.

Big Lake Oil Co.'s No. 14-C University, 725 ft. from S line and 2,730 ft. from E line of Sec. 25, Blk. 9, University Land Sur. ..... Location.

Big Lake Oil Co.'s No. 15-C University, 660 ft. from E line and 660 ft. from S line of Sec. 25, Blk. 9, University Land Sur. ..... Location.

Continental Oil Co.'s No. 9-B University, 1,900 ft. from S line, 1,305 ft. W of E line of Sec. 39, Blk. 9, University Land Sur. ..... Drlg. 8,360 ft.

RUNNELS COUNTY

Agnew et al's No. 1 H. B. Fowler, 150 ft. S and W of NE cor. of Sec. 23, N. Travis Sur. No. 533 ..... Drlg. 400 ft.

Golden Pet. Co.'s No. 2 McMillan, Subdv. 22, N. Travis Sur. ..... Moving in material.

B. C. Mann et al's No. 1 H. E. Wade, 150 ft. from S and 1,650 ft. from W line, Subdv. No. 8, Norvel Travis Sur. No. 533 ..... Drlg. 340 ft.

TOM GREEN COUNTY

J. R. Midlock's No. 1 Frank Garlitz, 150 ft. from S line and 840 ft. from E line of J. H. Mueller Sur. No. 2,201 ..... Drlg. 500 ft.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G.... Drlg. 7,041 ft.

WARD COUNTY

Abell Brothers' No. 1 Archenhold et al, 2,310 ft. from NE line and 330 ft. from SE line of Sec. 23, H.&T.C. Sur., Blk. 5 ..... Drlg. 1,360 ft.

Atlantic Oil & Prod. Co.'s No. 4 W. D. Johnson, 330 ft. from NE line and 990 ft. from SE line of NE half of Sec. 9, H.&T.C. Sur., Blk. 34 ..... Drlg. 2,146 ft.

Atlantic Oil & Prod. Co.'s No. 9 Johnson, 330 ft. from NE line and 990 ft. from NW line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,491 ft.

Atlantic Oil & Prod. Co.'s No. 10 Johnson, 990 ft. from NE line and 330 ft. from NW line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

Atlantic Oil & Prod. Co.'s No. 11 Johnson, 2,310 ft. from NE line and 1,650 ft. from SE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

Atlantic Oil & Prod. Co.'s No. 12 Johnson, 990 ft. from SE line and 990 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

Atlantic Oil & Prod. Co.'s No. 13 Johnson, 330 ft. from NE line and 330 ft. from SE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

Atlantic Oil & Prod. Co.'s No. 14 Johnson, 330 ft. from NE line and 2,310 ft. from NW line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

Atlantic Oil & Prod. Co.'s No. 15 Johnson, 330 ft. from SE line and 1,650 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

George Bentley et al's No. 1 C. Bergman, 330 ft. from NE line and 2,310 ft. from NW lines of Sec. 26, Blk. 5, H.&T.C. Sur. ..... T.D. 2,650 ft., plugged back to 2,470 ft., fishing.

George Bentley et al's No. 1 A. Emory, 1,330 ft. from NE line and 2,310 ft. from NW line of Sec. 26, Blk. 5, H.&T.C. Sur. ..... T.D. 2,301 ft.

California Oil Co.'s No. 1 York, 330 ft. from NW line and 330 ft. from SW line of Sec. 10, Blk. 34, H.&T.C. Sur. ..... Location.

Eastland Oil Co.'s No. 2 Johnson, 1,980 ft. from SE line and 1,980 ft. from SW line of Sec. 24, Blk. 34, H.&T.C. Sur. ..... Drlg. 600 ft.

Eppenauer Drlg. Co.'s No. 1 University, 330 ft. from N and 440 ft. from E of S half of Blk. 16 ..... Drlg. 2,650 ft.

Gulf Prod. Co.'s No. 22 Hutchings, 330 ft. from N line and 330 ft. from W line of Sec. 4, Blk. F, G.M.M. B.&A. Sur. ..... Drlg. 1,665 ft.

Gulf Prod. Co.'s No. 27 O'Brien, 990 ft. from N line and 330 ft. from E line of Sec. 17, Blk. F, G.&M.M.B.&A. Sur. ..... Location.

Gulf Prod. Co.'s No. 36 O'Brien, 330 ft. from N line and 330 ft. from E line of Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,210 ft.

Jack Leidecker et al's No. 1 A. Archenhold et al, 2,310 ft. from NE and 2,310 ft. from NW line of Sec. 23, H.&T.C.R.R. Sur., Blk. 5 ..... Swabbing and flowing 20 bbls. of oil per day; T.D. 2,637 ft.

Sinclair Prairie Oil Co.'s No. 3 H. Archenhold, 330 ft. from NE lines and 330 ft. from SE lines of SW of Sec. 23, H.&T.C. Sur., Blk. 5 ..... Rig up.

S. A. Thompson et al's No. 4 W. D. Johnson, 330 ft. from NE line and 2,310 ft. from NW line of the SW half of Sec. 9, H.&T.C.R.R., Blk. 34..... T.P. 2,292 ft.; running tubing; T.D. 2,536 ft.

WINKLER COUNTY

Harry Adams et al's No. 3 Scarborough, 990 ft. from N line and 990 ft. from E line of Sec. 1, Blk. 77, P.S.L. Sur. ..... Swabbing and cleaning out; est. 50 bbls. day; T.D. 3,183 ft.

Richardson et al's No. 1-D Scarborough, 990 ft. from N line and 1,650 ft. from E line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Rig up.

Richardson et al's No. 2 State, 102.5 ft. N and 330 ft. E from the NW cor. Sec. 1, Blk. 77, P.S.L. Sur. ..... Drlg. 1,800 ft.

L. H. Wentz' No. 1 Daugherty, 330 ft. from N and 330 ft. W of Sec. 3, Blk. C-33, P.S.L. Sur. ..... Location.

East Central Texas Wildcats

(Continued from Page 60)

S. K. Vierson's No. 4-A Andy Givens, 680 ft. from S line and 134 ft. from E line of survey, R. W. Smith Sur. ..... Location.

HENDERSON COUNTY

Campbell and Champlin's No. 1 R. S. Ansley, 108 varas S and 623 varas W of NE cor. of lease, 6 miles SE of Buffalo, N. H. Thompson Sur. ..... Derrick.

McElreath and Suggett et al's No. 1 Ferguson, 330 ft. out of most southerly NW cor. of 252.8-ac. tract, William P. Wyche Sur. ..... Plugged back to 4,215 ft.; showed 600 ft. of salt water in 15 min.; no show of gas or oil.

Bill LaRue et al's No. 1 G. L. Smith, 330 ft. out of NW cor. of G. L. Smith 149-ac. tract, 1 mile SE of Athens, Thomas Helms Sur. ..... Bldg. derrick.

Roeser & Pendleton's No. 1 L. R. Bilett, 330 ft. from N line and 2,310 ft. from E line of survey, Cecil Bobs Sur. ..... Coring 4,416 ft.

LEON COUNTY

Shell Petroleum Corp.'s No. 1 Beggs, center of 123.5-ac. tract, John Carter Sur. ..... Drlg. 5,526 ft.

MORRIS COUNTY

Argo and Key's No. 1 Hall, 330 ft. from NW cor. of survey, 3 miles NE of Dangerfield, L. Jordan Sur.... Derrick.

RUSK COUNTY

Arcadia Refining Co.'s No. 2 Griffin and Barnes, 6,950 ft. from S line and 150 ft. from E line of survey, J. B. De Cadena Sur. ..... Rig up.

East Texas Oil & Refining Co.'s No. 2 F. Barksdale, 1,900 ft. from N line and 3,000 ft. from E line of survey, M. J. Pru Sur. ..... T.D. 2,875 ft.

East Texas Oil & Refining Co.'s No. 3 Ras Pool, 3,490 ft. from N line and 2,570 ft. from E line of survey, M. J. Pru Sur. ..... T.D. 3,070 ft.

Farrell Drilling Co.'s No. 2 W. M. Hammett, 330 ft. out of most northerly NW cor. of survey, Walker Pettit Sur. ..... Waiting on cmt. to set 3,669 ft.

Gulf Production Co.'s No. 2 W. B. Perry, 2,410 ft. from N line and 990 ft. from W line of survey, I. Hemby Sur. ..... Waiting on cmt. to set; T.D. 3,660 ft.

Jordan & Ramsey's No. 1 L. W. Prior, 830 ft. from N line and 607 ft. from E line of 53-ac. lease, Walker Pettit Sur. ..... Waiting on csg.; T.D. 3,646 ft.

Walker Murray et al's No. 1 W. H. Arnold, 330 ft. from S and W lines of 50-ac. tract, Levi N. Sparks Sur. ..... Fishing; T.D. 3,722 ft.

George F. Hudson's No. 1-A Phillips, 30 ft. NE of No. 1, 3 miles E of Minden, N. Villareal Sur. ..... Drlg. 1,400 ft.

Hunt Production Co.'s No. 2 B. F. Maxwell, 820 ft. from N line and 2,510 ft. from W line of survey, R. H. Penny Sur. ..... Drlg. 1,525 ft.

McDonald Bros.' No. 2-A Cora Hannah, 7,850 ft. from N line and 8,580 ft. from E line of survey, J. B. De Cadena Sur. ..... Running tubing; T.D. 3,642 ft.

R. J. McMurray et al's No. 2 A. D. Blackwell, 1,490 ft. from N line and 150 ft. from W line of survey, M. J. Pru Sur. ..... Testing; T.D. 3,642 ft.

P. & A. Oil Co.'s No. 2 Brightwell, 700 ft. from N line and 1,820 ft. from E line of survey, R. W. Smith Sur. ..... Drlg. 3,320 ft.

Patterson Drlg. Co.'s No. 3 Brock Estate, 2,320 ft. from N line and 100 ft. from E line of survey, R. W. Smith Sur. ..... Derrick.

Texas Co.'s No. 5 J. W. Turner, 955 ft. from S line and 330 ft. from W line of lease and survey, J. M. Scott Sur. ..... Drlg. 3,760 ft.

SMITH COUNTY

Alex McCutcheon's No. 4 Stone, 890 ft. from N line and 960 ft. from W line of survey, D. Shaw Sur. .... Rig up.

W. L. Sessions' No. 5 Stone, 1,000 ft. from S line and 910 ft. from W line of survey, D. Shaw Sur. ..... Drlg. 3,781 ft.

UPSHUR COUNTY

Magnolia Petroleum Co.'s No. 2 C. Brooks, 330 ft. from S and W lines of 50-ac. tract, J. F. Davis Sur. .... Drlg. 3,420 ft.

Reynolds et al's No. 3 Miller, 670 ft. from N line and 2,100 ft. from E line of survey, D. Ferguson Sur. .... Swabbing; T.D. 3,772 ft.

Skelly Oil Co.'s No. 4 J. W. Free, 2,020 ft. from N line and 5,380 ft. from E line of survey, G. W. Hooper Sur. ..... Waiting on cmt. to set.

Stroube and Stroube's No. 6 J. Mackey, 990 ft. from S line and 330 ft. from E line of survey, D. Reed Sur. ..... Waiting on cmt. to set; T.D. 3,630 ft.

B. F. Traywick et al's No. 1 M. Vaughn, 330 ft. from S line and 330 ft. from W line of 108-ac. tract, 2 miles NW of Big Sandy, P. B. Standifer Sur. ..... Digging pits.

VAN ZANDT COUNTY

Everett Drilling Co.'s No. 1 J. J. Goode, 1,100 ft. from E line and 330 ft. from N line of lease, W. Rose Sur. ..... Rig up.

B. F. Frost et al's No. 1 G. J. Luther, 200 ft. from S line and 75 ft. from E line of survey, M. Gross Sur. ..... Drlg. 1,201 ft.

Gray and Williams et al's No. 1 Paschall, 590 ft. from E line and 200 ft. from N line of 39-ac. tract, 5 miles NW of Jackson, D. T'Barbo Sur. ..... Set surface csg. 88 ft.

J. O. Griffin's No. 1 Bruce & Gibbard, 1,000 ft. from S line and 330 ft. from E line of 134-ac. tract, G. Martinez Sur. ..... Derrick.

Pure Oil Co.'s No. 5 J. J. Murphree, 250 ft. S of N line and 200 ft. E of W line of J. J. Murphree 82.5-ac. tract, John Walling Sur. ..... Location.

Pure Oil Co.'s No. 3 R. M. Butler, 900 ft. S of N line and 967 ft. W of R. M. Butler 89.16-ac. tract, Davis Rose Sur. ..... Location.

George Ray et al's No. 1 C. Wilson, 1,100 ft. from S line and 2,420 ft. from W line of 172-ac. tract and survey, 6 miles W of Myrtle Springs, H. Cotes Sur. .. Derrick.

Ray Drilling Co.'s No. 1 J. W. Mallory, 1,150 ft. from S line and 150 ft. from W line of 217-ac. tract, John Walling Sur. ..... Derrick.

WOOD COUNTY

D. T. Cauble and Thompson's No. 1 N. G. Bobbett, 650 ft. from S line and 220 ft. from W line of tract, 2½ miles NW of Mineola, Daniel Fuller Sur. ..... S.D. 4,122 ft.

Harvey, McPherson and Rice Pools Take Brunt of Past Week's Production Cut in Kansas

By JAMES McINTYRE

Kansas' estimated daily average production for the week ending Saturday, October 9, was 116,025 bbls., a cut of 5,610 bbls. under the production of the previous week. The Hollow Pool and the Nikkell Pool and the various pools in Rice County stood the brunt of the decline.

There was a dearth of new work in the State in the past week, and no new production out of the ordinary.

Production of Pools

Following is the estimated daily average production of some of the more prominent pools and fields of Kansas in the week ending October 7, and in the preceding week:

	Oct. 7	Sept. 30
Hollow	8,902	11,405
Ritz-Canton	18,167	18,795
Voshell	6,096	6,175
Sedgwick County	9,670	9,649
Nikkell	2,001	4,175
Ellsworth County	4,353	4,658
Rice County	6,180	6,496
Barton County	470	580
Reno County	1,801	2,302
Ellis County	793	886
Kingman County	1,040	643
Stafford County	695	557
Greenwood County	11,400	11,400
Butler County	18,000	17,800
Other pools	27,457	26,123
Total Kansas	116,025	121,635

Harvey County

Sinclair Prairie Oil Co.'s No. 1 H. Schroeder, NW cor. NE Section 4-22-3w, in the Hollow Pool, Harvey County, was given a pumping test and made 60 bbls. in two hours. It had swabbed 457 bbls. in 12 hours on a previous test. It had not been acidized. Total depth is 3,506 feet, 4 feet in Hunton lime.

Derby Oil Co.'s No. 4 Schmidt, NE SW NW Section 17-22-3w, was plugged back to 3,447 feet, and was shot with 60 quarts at 3,434-47 feet. It swabbed 2½ bbls. per hour. It was then acidized and had not yet been tested.

Hollow and others' No. 3 Schmidt, SW NE NW Section 17-22-3w, which had been acidized, made 224 bbls. on the gas lift in eight hours. It is producing from Hunton lime topped at 3,415 feet.

Sinclair Prairie Oil Co.'s No. 3 Neufeldt A, SE cor. Section 18-22-3w, was tested on the pump and made 60 bbls. in three hours. It had previously swabbed 495 bbls. in 17 hours. The well had not been acidized. It is a Hunton lime producer, 3,448-70 feet. Same company's No. 3 Neufeldt B, SE NE NE Section 12-22-3w, with Hunton lime at 3,389-3,423 feet, was acidized and swabbed 480 bbls. in 24 hours. Viola lime was topped at 3,530 feet and the crew was running 5-inch liner to deepen.

Mid-Kansas Oil & Gas Co.'s No. 2 Duerkson, SW SE NE Section 19-22-3w, had the top of the Hunton at 3,455 feet, and set 7-inch pipe. Same company's No. 6 Duerkson, SE NE NE Section 19-22-3w, filled up 1,800 feet with oil in 12 hours from Hunton lime at 3,454-85 feet. It will be acidized. No. 7 Duerkson, NE cor. Section 19-22-3w, pumped 1,057 bbls. in 24 hours, from Hunton lime pay at 3,453-63 feet. It had not been acidized.

Producers & Refiners Corp. deepened No. 2 Martens, SE SW SE Section 19-22-3w, from 3,515 feet (Wilcox sand) to 3,528 feet, and it swabbed 100 bbls. in five hours. Same company's No. 6 Martens, NW SW SE Section 19, which had 2,300 feet of oil in the hole two weeks ago had not yet been tested. No. 7 Martens, SW SE Section 19, was drilling at 3,302 feet.

Kingman County

D. R. Lauck's No. 1 Church, SE SW NE Section 10-28-6w, in Kingman County, was a failure. It had chat, Kansas City lime and Wilcox sand, the last named at 4,271-93 feet, total depth 4,296 feet, but only a hole full of water. It is a wildcat test southeast of the town of Kingman.

In the Cunningham district in Kingman County Skelly Oil Co.'s No. 3 F. C. Miles, CWL NE Section 30-27-10w, which was given a 1,000-gallon acid treatment at 3,427-56 feet, flowed 1,102 bbls. in 24 hours, and was completed.

Skelly Oil Co.'s No. 1 Ratcliff, CEL NW Section 30-27-10w, was completed after flowing 104 bbls. in 24 hours. When first acidized in September it made 729 bbls. in 16 hours. First oil was found at 3,425 feet, total depth 3,463 feet.

McPherson County

In the Nikkell Pool, southwestern McPherson County, Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 5 P. Zerger, SE NE SE Section 16-21-3w, was completed. It tested 261 bbls. in 24 hours on the pump, producing from Wilcox sand at 3,400-29 feet.

J. E. Mabee, Inc., and Shell Petroleum Corp.'s No. 3 Klassen, SW NW SE Section 33-21-3w, swabbed 330 bbls. in seven hours, from Hunton lime at 3,466-70 feet.

Dickey Oil Co. and Indian Territory Illuminating Oil Co.'s No. 1 Gray, NW cor. SE Section 2-20-3w, got chat at 3,015 feet and drilled to 3,060 feet. The well tested 75 bbls. in six hours on the swab.

The Texas Co.'s No. 3 Munn, NE SE NE Section 12-20-2w, a Viola lime producer at 3,398-3,408 feet, swabbed 30 bbls. per hour. It will be acidized. It is an old well deepened.

Palmer and others' No. 2 Ritz, in the Ritz Canton Pool, NW cor. Section 7-20-1w, was deepened from 2,968 feet and got Viola lime at 3,386-91 feet. It was acidized and made 427 bbls. on the pump in 24 hours.

Regina Oil & Gas Co.'s wildcat, No. 1 Vogts, C SE SE Section 8-20-1w, has a hole full of water and a small oil showing at 3,006 feet.

Lario Oil & Gas Co. and Shell Petroleum Corp.'s No. 3 Law, SE NE NE Section 24-19-2w, which had been acidized, pumped 150 bbls. of oil and 75 bbls. of water in 24 hours, from Viola lime at 3,408-10 feet. Same companies' No. 2 Hill, NE SE Section 23-19-2w, swabbed 7 bbls. per hour from Viola lime at 3,391-3,405 feet. It was treated with 1,000 gallons of acid but no test had been made.

Youker and others deepened No. 3 Grattan, SW cor. Section 24-19-2w, from 2,981 feet to Viola lime at 3,392-97 feet. It was given 3,000 gallons of acid and pumped 550 bbls. of oil in 24 hours. Later it was reported pumping 350 bbls. It was completed.

Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 2 Wiles, CEL NE Section 25-19-2w, pumped 113 bbls. in 24 hours, after it had been shot with 5 quarts at 3,410-14 feet.

Dickey Petroleum Co. and Shell Petroleum Corp.'s No. 4 Decker B, SE NW SE Section 35-19-2w, was treated a second time with acid in Viola lime but not yet tested.

Vernon Oil & Gas Co. and Shell Petroleum Corp.'s No. 4 Drumm, NE SE NE Section 35-19-2w, was given an acid treatment in Viola lime at 3,385-96 feet and later pumped 65 bbls. in 24 hours. It was completed.

Rice Oil Corp. and Shell Petroleum Corp.'s No. 2 Grattan, SE SW SE Section 19-19-1w, pumped 613 bbls. of oil and 96 bbls. of water in 24 hours, after an acid treatment in Viola lime at 3,420-31 feet.

United and Shell's No. 2 Smith, NE NW Section 29-19-1w, swabbed 9 bbls. of oil and 49 bbls. of water following an acid treatment in Viola lime at 3,416-22 feet.

New work in McPherson County included Slick, Pryor & Lockhart's No. 3 Stucky, CWL SW Section 27-20-3w, moving in rotary; the Texas Co.'s No. 4 Munn, SE NE NE Section 12-20-3w, material in to deepen from 2,988 feet; Palmer and others' No. 1 Ritz, SW NW NW Section 7-20-1w, rigging up to deepen from 2,986 feet; Gypsy Oil Co. was moving in material for No. 1 Lovett, NW cor. Section 24-19-2w; Lario Oil & Gas Co. and Shell Petroleum Corp. were drilling deeper in No. 3 Suffield, NE SE Section 25-19-2w, from the old total depth of 3,421 feet. Youker and others have started drilling No. 6 Eaton, NE NW NE Section 26-19-2w, and have material on the ground for No. 7 Eaton, NW NE NE Section 26.

Rice County

In Rice County, Max Court Oil Co.'s No. 1 Fuson, 880 feet from north line and 570 feet from the west line of NW SW Section 32-19-9w, Chase Townsite, pumped 617 bbls. of oil and 21 bbls. of water from Siliceous lime pay at 3,246-67 feet. It was a potential test and the well was completed.

Derby Oil Co.'s No. 2 Stratman, NW NE Section 12-17-10, Stratman Pool, tested 165 bbls. on the pump in 24 hours and will be acidized again. It has the Siliceous lime at 3,248-72 feet.

Palmer and others' No. 1 Specht, SE SW SW Section 16-20-10w, pumped 415 bbls. of oil and 21 bbls. of water in a potential test of 24 hours from lime at 3,130-41 feet.

Gypsy Oil Co. has rig up for No. 1 Malone, SW SE NW Section 18-20-10w. Eldorado Refining Co.'s No. 1 Wernet, SW cor. NE Section 12-20-6w, is a rig for a wildcat test.

Sedgwick County

In Sedgwick County, the Plains Petroleum Co. has a rig up for No. 1-A College, NE SE SW Section 2-27-1w, Wichita.

Wentz and others have rig up for No. 1 Stockamr, SW cor. NE Section 31-26-2e.

Aylward and Shell Petroleum Corp.'s No. 1 Erdwein, SE SW SW Section 11-26-2e, was acidized with 500 gallons and made 885 bbls. of oil and 120 bbls. of water in 24 hours. It is producing from Viola lime at 3,164-66 feet. It is an old well drilled deeper.

Greenwood and Woodson Counties

In Greenwood County Markus & Gore were cleaning out after shooting No. 3 Smith, NW SW NE Section 6-24-12, with 200 quarts in sand at 1,732-80 feet.

Rex and others' No. 5 Nesbitt, SE NE NW Section 6-24-12, got sand at 1,732-80 feet and Mississippi lime at 1,837-63 feet. The well pumped 2 bbls. an hour, but was then acidized and had not since been tested.

Brazil and others have a failure in No. 1 Klingensmith, NE cor. SE Section 19-24-13. It was a hole full of water from Mississippi lime at 1,616-1,716 feet.

(Continued on Page 75)

Wildcat Operations in Kansas

Week Ending October 7

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location—	Remarks:
Atlantic O. P. Co.'s No. 1 Schneider, C NE SW Sec. 15-20-13w	Drlg. 1,648 ft.
Helmerich & Payne's No. 1 Everleigh, C SW SE Sec. 13-18-13w	Fishing; T.D. 2,330 ft.
Skelton et al's No. 1 Ott, C SE SE Sec. 16-19-14w	O.W.D.D.; T.D. 3,706 ft.; P.B. to 3,255 ft.

BUTLER COUNTY

Hartman et al's No. 1 McCann, SE SW NW Sec. 7-25-3	Acidized 2,791-2,801 ft.; pumped 50 bbls. oil and 192 bbls. wtr. in 24 hrs.

COWLEY COUNTY

Van Meter et al's No. 1 Moore, NE cor. Sec. 5-35-4	Location.

EDWARDS COUNTY

Atlantic Oil Prod. Co.'s No. 1 Bradbridge, C SE NW Sec. 1-24-16w	Drlg. 2,867 ft.

FINNEY COUNTY

National Ref. Co. et al's No. 1 Smith, C SE SW Sec. 2-23-29w	Drlg. 770 ft.

HARVEY COUNTY

Holbart Oil Co.'s No. 1 Harder, SE SW SE Sec. 11-23-1e	Drlg. 2,415 ft.
L. H. Wentz' No. 1 Bestvater, SW SE SW Sec. 8-22-1e.	Drlg. 2,650 ft.

KINGMAN COUNTY

D. R. Lauck et al's No. 1 Church, SE SW NE Sec. 10-28-6w	T.D. 4,296 ft.; may abd.
Olson and Skelly Oil Co.'s No. 1 Emery, C SW NW Sec. 22-25-6w	Drlg. 3,145 ft.
Regina O. & G. Co. et al's No. 1 Wilson, NW NE Sec. 26-25-5w	Drlg. 3,455 ft.

MARION COUNTY

Holbart Oil Co.-Shell Pet. Corp.'s No. 1 Gingras, NE SW Section 8-24-1e	Drlg. 2,005 ft.

McPHERSON COUNTY

Regina O. & G. Co.'s No. 1 Vogts, C SE SE Sec. 8-20-1w	Drlg. 3,006 ft.
Jim Madison's No. 1 Boesker, SE NW Sec. 29-20-1w	Spudded.
Paramount Oil Co.'s No. 1 Steinkirchner, NE SE SE Sec. 25-19-1w	T.D. 2,525 ft.; U.R. 8-in. pipe.

RENO COUNTY

Mylius et al's No. 1 Patton, SE NE Sec. 35-23-5w	Drlg. 3,779 ft.
Roth & Faurot's No. 1 Yoder, C NW NW Sec. 15-24-5w	Rig up for new hole.

RICE COUNTY

Atlantic Oil Prod. Co.'s No. 1 Brandenstein, C SE SE Sec. 10-19-10w	Drlg. 2,867 ft.
El Dorado Ref. Co.'s No. 1 Wernet, SW NE Sec. 12-20-6w.	Rigging up.
Elmer Corn et al's No. 1 Hunter, NE cor. Sec. 35-19-7w	Rig on ground.
Garden et al's No. 1 Thodel, C NW NW Sec. 11-21-7w.	Comp.; pumped 250 bbls. in 24 hrs.

SEDGWICK COUNTY

Wentz et al's No. 1 Stockamr, SW NE Sec. 31-26-2w	Rig.

STAFFORD COUNTY

Atlantic Oil Prod. Co.'s No. 1 Willinger, C NE NE Sec. 18-22-11w	Spudding.

Drill Stem Test Provides Indications of Another Oil and Gas Field Along the Conroe Trend

By W. A. SPINNEY
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Oct. 9.—Indications of another possible field, located in the southwestern part of Polk County along the so-called Conroe trend were seen in a drill stem test in a wildcat being drilled by Dick Schwab 9 miles southeast of the Livingston Field. In the test a pressure of 600 pounds was built up in four minutes through quarter-inch chokes. With the tool open eight minutes a pressure of 650 pounds was gauged and some mud and sand showing oil were recovered.

This gas was found in sand at 4,711-71 feet in the Cockfield, topped at 4,726 feet. Preparations are being made to run a string of 7-inch casing, which probably will be seated at 4,701 feet, to test. Some of the cores showed oil saturation.

The test is on the Kirby & West tract in the Geraldus Thomas Survey, on a block acquired recently by Mr. Schwab, who drilled the discovery well of the Livingston Field.

Republic Production Co. and Houston Oil Co.'s No. 4 Arriola fee, Arriola Dome, Hardin County, was being brought in over the week-end as the first important producer on the dome. This well recently blew in out of control and ran wild for 2½ days making an estimated 5,000 to 10,000 bbls. daily through 7-inch casing from sand at 4,131-4,228 feet. The well, however, was killed successfully and since then a string of tubing has been run in.

May Be First Commercial Well

Pure Oil Co.'s No. 1 Stewart, Louise area, Wharton County, is of particular interest at this time. It is in process of completion and if it makes a producer it will be the first commercial well there. On a drill stem test sometime ago it showed oil and gas but it was drilled to a total depth of 8,067 feet, where it blew out. It was plugged back to the first oil and gas showing found at 5,963-71 feet. It was on this oil and gas showing that the company has carried on an extensive wildcat development, drilling nine tests simultaneously within a radius of 3 miles.

Pure Oil Co.'s No. 1 Kuntze, another wildcat at Louise, is fishing for casing at a total depth of 7,134 feet. This test also is in sand showing oil and gas at 7,128-34 feet. In running casing a joint of pipe was dropped into the hole. This well is a mile southeast of the Stewart well.

Other Pure Oil Co. tests at Louise are drilling deeper in search of producing horizons. They include No. 1 Garrett, Section 28, drilling at 6,181 feet in shale; No. 1 Weaver, Section 22, drilling at 6,080 feet in shale; No. 1 Hudgins, about 2 miles south of the nearest test, drilling at 6,110 feet in shale; No. 1 Wilder, Section 28, drilling in shale at 5,585 feet; No. 1 Wallace Houston, drilling at 4,630 feet; No. 1 Lancaster, drilling at 4,956 feet; No. 1 McIntyre, drilling at 1,300 feet.

Smith & McDonald and Shell Petroleum Corp.'s No. 1 Ridgeway, Lake View prospect, Wharton County, which was drilled to a total depth of 7,607 feet, now is attempting to sidetrack in new hole at 5,632 feet. It has not reported any showings of oil or gas while drilling with the exception of a gas showing at 6,790 feet.

Stoneleigh Oil & Gas Co.'s No. 1 Zimmer, Coletta area, Victoria County, Lower Gulf Coast district, is a disappointment in the shallow horizon. It tested salt water in sand from 2,850-84 feet. Showings in a drill stem test in this well caused excitement and a number of lease and royalty deals were made prior to the salt water test. The owners are preparing to pull the screen to drill deeper.

The discovery well in the Coletta area of Victoria County, was drilled by the same interests and completed in May, 1933, in sand at 4,417-37 feet. It was a gas well, about a mile west from the recent test that showed oil.

Three Wild Wells

During the last week there were three wild wells in scattered fields on the Gulf Coast. All have been brought under control. Humble Oil & Refining Co.'s No. 26 Hooks-Guedry, Hull Field, Liberty County, blew in and ran wild for several days before being brought under control. The well was estimated, while it was blowing wild, to be making between 7,000 and 8,000 bbls. of oil a day. It killed itself by sanding up. The tubing was in the hole at the time it blew out and it is necessary to junk the hole. Another test, No. 27 Hooks-Guedry, is being started. This well is in the new district southeast of production and was being completed at a total depth of 4,450 feet when it blew out. It is the direct offset to the Miramar Oil Corp.'s No. 2 Phoenix, recently completed for 900 bbls. of pipe line oil.

Skelly Oil Co.'s No. 1 Saunders, southwest of production in the Livingston Field, Polk County, blew wild about five days making what was estimated to be around 10,000,000 feet of gas a day with a spray of oil. This was also being completed when it blew out of control.

The other wild well was in the Conroe Field in Montgomery County, where Southland Oil Co.'s No. 5 Cummings, an old producer, ran wild for three days after the crownblock fell on the christmas tree and broke the connections. It made an estimated 2,000 bbls. of oil with 20,000,000 to 30,000,000 feet of gas a day. The well was killed successfully and new connections rigged up.

Interest is being revived in the Tomball Field of Harris County, where six new locations were announced during the week. Humble Oil & Refining Co. started four new operations and Magnolia Petroleum Co. two. Humble Oil & Refining Co.'s wells are outpost tests. Its No. 1-B Kobs is 2 miles west of the discovery well at Tomball, and is about 1,000 feet north of the same company's No. 1 Henricks. Its No. 1 Petrick is about 1,000 feet west of the discovery well, and No. 1 Guitter, in the A. Senschel Survey, is 6,000 feet southeast from the same company's No. 1 Reid, most easterly producer.

Magnolia Petroleum Co.'s No. 1 Ervine is a new location about a half mile north of the most northerly production. Magnolia Petroleum Co.'s No. 1 Rudel-Oster is a new location, being the east offset to the Continental Oil Co.'s No. 1 Theis, most northerly producer.

If all of these wells make commercial producers they will make the producing area at Tomball 4 miles east and west and 4 miles north and south.

Liberty County Again Active

Liberty County, which in the past has been the center of much wildcat leasing, again is active in the northwest part of the county. Renewed activities are centered around what are believed two structures in the county. In the Tarkington Prairie district, in the northwestern part of the county, Hamill & Smith's No. 1 Peavy is drilling below 5,425 feet with nothing showing. This test is south of the recent leasing activities which have been centered around Cleveland.

From the recent developments in and around the Cleveland area where acreage has been taken by the Gulf Production Co., it would seem that the townsite of Cleveland is approximately the center of one of the structures. The Gulf Production Co. has a major portion of the acreage. Another area in Liberty County, where the Gulf Production Co. is again the holder of a major portion of the acreage is in the vicinity of the forks of the East San Jacinto River.

In addition to these areas, both of which are on the west side of the Trinity River and in the northwestern part of the county, there is another interesting area in the northeast part of the county, along the boundary lines of Polk and Liberty Counties. Most of the acreage in this area is held by the Gulf Production Co., Sun Oil Co., Simms Oil Co., and Magnolia Petroleum Co. Humble Oil & Refining Co. also has a large number of leases in scattered areas in the northern part of the county.

During the week the Shell Petroleum Corp. adjusted its crude oil prices upward in Iowa, Black Bayou and White Castle Fields 2 cents a barrel. This price change was effective October 3. The new prices at Iowa now start at 70 cents for 20 gravity and run to $1.02 for 34 and above. The new prices in the Black Bayou and White Castle Fields start at 82 cents for below 20 gravity and run to $1.12 for 34 and above.

Texas Co.'s No. 10-B State, Section 13-12s-10w, East Hackberry, Cameron Parish, has been reworked and it made 525 bbls. of oil in sand at a total depth of 7,272 feet. This well is located on the northeast flank of the dome and is an outpost well. It was first completed in May of this year for 975 bbls. at 7,267 feet.

Burton-Sutton Oil Co.'s No. 1 School, Section 16-14s-13w, Cameron Parish, is an interesting test north of Cameron Meadows production. It was drilling at 6,610 feet on the last reports which is deeper than production has been found in that field.

To Start Running Oil

The important event in the Greta Field during the week was the announcement by the Texas Pipe Line Co. that it would complete its pipe line and start running oil by October 15. There were no well completions but a number of tests are in the sand and will be brought in this week. The field is expected to be extended a half mile to the west by the completion of the United Production Co.'s No. 6 Fox, which cored a sand showing oil and gas from 4,362-90 feet. The casing has been cemented and the company was drilling the cement plug and preparing to wash the well in over the week-end.

Texas Gulf Producing Co.'s No. 1-A J. M. O'Brien is expected to reach the sand shortly. It was drilling at 4,345 feet on the last reports. Greta Oil Corp.'s No. 4-B O'Brien set casing at a total depth of 4,376 feet and should be completed this week. Floboots Oil Corp.'s No. 1-C O'Brien was drilling in sand at 4,388 feet. Dash Production Co.'s No. 3-D O'Brien found a showing of oil and gas in sand at 4,381-91 feet and is setting a liner.

The Greta Field has three producing sands and a number of gas sands that have never been tested. Owing to the strict proration that is in effect there the daily production is being kept down, but if this field were allowed to produce it is estimated the present wells would make around 25,000 bbls. daily. The discovery of the deep producing sand which was found last week at 5,400 feet in a well on the east side may cause new development work but as yet nothing has been done in the way of testing this horizon in other parts of the field. Plans for the drilling of this sand on the basis of one well to 40 acres are being discussed by operators.

Gulf Coast Fields and Wildcats

Week Ending October 7

DAMON MOUND—BRAZORIA COUNTY

Company, farm and location—	Remarks:
Intercoastal Oil Co.'s No. 11 Wisdom, 350 ft. E of No. 6, Blk. 51, Lot D, A. Durst Sur.	T.D. 3,160 ft.; reaming.

MANVEL—BRAZORIA COUNTY

Texas Co.'s No. 3-B Belcher, 2,747 ft. NE, 1,478 ft. SE of W center of lease	Rigging.
Texas Co.'s No. 5-A Belcher, S 40 deg. W 3,430 ft., S 48 deg. E 300 ft. from N cor. of "A" lease, H. N. Little Sur.	Drlg. shale and lime 4,749 ft.
Texas Co.'s No. 6 Belcher, H. N. Little Sur., South 42° W 2,400 ft. and S 48° E 400 ft. from N cor. lease	T.D. 5,476 ft.; 7-in. csg. cmtd. at 5,382 ft.
The Texas Co.'s No. 2 Davis, 300 ft. out of S cor. Lot 42, H. N. Little Sur.	T.D. 5,812 ft.; cmtd. back to 3,790 ft.; standing.
Texas Co.'s No. 1 Ellis, 1,660 ft. N, 807 ft. S, from NW cor. of lease, H. N. Little Sur.	Rigging.

STRATTON RIDGE—BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 3 Seaborn (W.O.), Austin & Williams Sur., 1,250 ft. E of W line, 4,550 ft. S of N line	T.D. 5,580 ft. in salt; P.B. to 4,350 ft.; drlg. new hole 4,449 ft.

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 2-B Gulf fee, Wm. Bloodgood Sur., 1,240 ft. N along N line, 800 ft. E at right angles to W line	Drlg. cap rock 857 ft.
Mills Bennett Prod. Co.'s No. 3-E Gulf fee, 442 ft. W along S line, 710 ft. N at right angles to S line	Spudding.
Mills Bennett Prod. Co.'s No. 3 J. B. Means, 300 ft. W of No. 2 in center of strip (W.O.)	T.D. 5,467 ft.; P.B. to 5,070 ft.

(Continued on Page 78)

Best Completion in Cuevitas Pool, Starr County; Wildcatting Extends Into McMullen County

By B. D. STEVENSON
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Oct. 9.—Sun Oil Co.'s No. 4-A Guerra, in Starr County, is a big well, gauging at the rate of 720 bbls. daily through quarter-inch choke from sand 2,253-63 feet. It is the farthest east of the four producers thus far completed and by far the best well and is producing 36.6 gravity oil, about the same as the discovery well.

The field, named the Cuevitas Pool, in the northwest corner of Starr County, produces from the Government Wells sand and at about the same depth as in the Government Wells Pool, 75 miles north in Duval County.

The layout of the field with four producers has not yet given definite indication of how important and extensive an area it will cover or in what direction it will lie. Other than No. 1-C Guerra, a gas well, a half mile south of the discovery well the pool consists of the discovery well which came in for 17,000,000 feet of gas daily and 15 bbls. of high gravity oil hourly, No. 2-A Guerra, 2,000 feet southeast of it, which came in for around 100 bbls. daily and No. 4-A Guerra, 2,000 feet southeast of No. 2-A, which came in for 720 bbls. daily. The three oil wells lie nearly in a straight line. No. 3-A Guerra, about a half mile nearly due south of No. 4-A, is a failure and was abandoned.

Up to this time Sun's operations have been all there were excepting Scarp Oil Co.'s No. 1 Lopez, 8 miles northwest in Jim Hogg County and located with reference to geology so as to pick up the sand at about the same depth as in the Sun well but it is now down around 2,500 feet and getting too low for that sand horizon.

Last week Edgington of Laredo made location for his No. 1 Guerra in Porcion No. 110 approximately 2 miles southeast and nearly on a line with the three oil wells of Sun. Edgington's location is 5,818 feet from the northeast line and 330 feet from the northwest line of Porcion No. 110. Also McGinley is making location in Porcion No. 109 the next porcion southeast of No. 110. W. A. Smith with a location a mile west of Sun's discovery well is still a location.

Two New Pools

Starr County is wrestling with two new pools. The first test drilled 8 miles northeast of Rio Grande City since the bringing in of the Jeffries-Lambeth Drilling Co.'s No. 1 Starr County Cattle Co., in Porcion No. 89, is Shankle's No. 1 Garcia, approximately 4,000 feet northeast of the gas well and it is dry and abandoned at 3,010 feet. The Jeffries-Lambeth well is a gas well at 2,450-55 feet.

About 6,000 feet southeast, Harrison's No. 1 Garcia late in the week was down about 2,400 feet and drilling and about 3 miles south Meyers and others' No. 1 Starr County Cattle Co. is down a few hundred feet. Goodwin & Yantis' No. 3 Kelsey Bass is located 6,000 feet northwest and it is shut down for water at about 1,000 feet.

Jeffries-Lambeth Drilling Co. has thus far made no additional locations and the tests drilled or drilling are all at considerable distance from the discovery well.

Northern Duval County

Magnolia Petroleum Co. carried the North Government Wells Pool another location of 660 feet north last week with its No. 1 Duval County Ranch Co., 1,600 feet from the east line and 330 feet from the south line of Survey No. 208, a direct north offset to Navarro Oil Co.'s No. 18 C. W. Hahl. The Magnolia well came in for 45 bbls. hourly, a good average well for the field. Magnolia owns all the acreage for a mile north, so that any extensions must be on Magnolia acreage.

At the south end of the pool Smith & Story's No. 5 Lundell, a half mile southwest of nearest production and that only one well, is still drilling but right close to sand depth at the close of the week. The south end of the pool has plenty of open spaces. From the main pool it is over a half mile to two gas wells and two oil wells offsetting each other and another half mile to Smith & Story's No. 4 Lundell and another half mile to No. 5 Lundell now drilling.

The new pool 2 miles west of the north end of the North Government Wells Pool has begun to attract some attention. Reynosa Oil Corp. brought in its Nos. 3-A and 4-A Duval County Ranch Co. extending the pool 1,320 feet east, making it a half mile wide and it is more than a half mile long north and south. Each of the two wells came in for 35 bbls. an hour on choke in sand at 2,263-86 feet in No. 3-A and at 2,254-80 feet in No. 4-A.

Reynosa Oil Corp. has been doing all the drilling and has its No. 5-A next 660 feet east of No. 4-A down nearly to the same. Magnolia and Humble each have one oil well, offsetting each other on the north and have made no additional locations thus far. Sun has the farthest south well. Reynosa has the acreage in between, and the next locations Reynosa makes will necessitate offsets by one or the other of the three major companies.

McMullen County

Development of this pool into a position of importance has an interesting bearing on the wildcatting north and extending into McMullen County, and has probably had something to do with the keen interest for protective acreage and drilling blocks up through that country. There are now five locations on the Hagist ranch, two in Duval County and three in McMullen County, some of them already spudded in and others to be started at once. Three of these on the Hagist ranch in McMullen County are by Paul C. Teas. His No. 1 in Survey 181, and No. 2 in Survey 25, have started to drill and No. 3 in Survey 19 about half way between the other two is to start by October 18.

Whisenant and Trenchard's No. 1 Lowe, 2 miles west of Teas' No. 1 Hagist, was abandoned the past week at 2,507 feet, the first to be eliminated from the race. In addition to the three tests by Paul C. Teas there is left C. B. Bunte, Inc.'s No. 1 Lowe, 3 miles northwest of Teas' No. 1 Hagist, and in Duval County Buchanan's No. 1 Duval Ranch Co. in Survey No. 206, 4 miles due north of North Government Wells, drilling at the close of last week at around 1,000 feet, and Trinity Drillers' No. 1 Hagist just ready to start in B.B.B.&C.R.R. Survey No. 1, 2½ miles north of Buchanan and Cloyes' No. 1 Hagist, first announced as Denver and Harrison's No. 1 Hagist in B.S.&F. Survey No. 265, 1½ miles southeast of Trinity Drillers. In addition to these O. W. Killam who recently abandoned his No. 1 Wood-Welder in Survey 102 in Duval County has moved more than a mile west for his No. 2 Wood-Welder, 900 feet from the west line and 3,658 feet from the south line of Survey No. 102, which brings him on a line between the Cloyes test on the northeast, Sun Oil Co.'s small oil well in Survey No. 78 on the southwest and the north end of the North Government Wells Pool.

Interest in that territory is shown by the fact that Magnolia, Atlantic, Darby, Devonian, W. C. McBride, Inc., Mills Bennett, Amerada, Southland Royalty have all bought acreage. Three or four weeks will give the final verdict on everything listed in the district unless some of them get hung up.

Plymouth Oil Co. has made tentative location in Survey No. 114, 5 miles southeast of the Sarnosa Pool and about a quarter mile east of Conway and Campbell's No. 1 Hoffman brought in on the same survey as a big gas well below 2,700 feet a few weeks ago. It will largely determine whether the new field is to be an oil field or not. The Conway and Campbell test went only a few feet in and stopped in sand with an odor of oil. Plymouth will undoubtedly test for oil.

Continental Oil Co. which recently bought the lease on 53,000 acres of the Driscoll ranch will start a test within six months from September 16 when the contract was made and another within nine months, both to around 2,900 feet, and a third within 12 months to around 4,500 feet. Within 18 months the company will make selection of 12,000 acres around the Driscoll Pool and within two years a selection of two additional 6,000-acre blocks.

This work of the Continental on the Driscoll ranch and the Plymouth's on the Hoffman ranch, 15 miles north of it, will all be very interesting in showing the possibilities of production east of the Government Wells line of pools.

Balcones Fault Zone

Boler's No. 1 Milburn in Bexar County did not look so good at the close of the week with the top of the Georgetown at 1,458 feet and looking low. It is a quarter mile west of No. 1 Kearney that took a good core in the Edwards recently, creating considerable excitement. It is 15 miles southwest of San Antonio.

Other than a flock of shallow tests in Bexar County that have not made much progress lately the only activity in the Balcones Fault is C. J. Webster's No. 1 Fulps in Caldwell County with a crooked hole that has not been straightened out yet. It probably will get the Edwards high.

Two of the new Edwards lime tests in Guadalupe are started, L. E. Trout's No. 1 McKey, 4 miles southwest of Darst Creek Field, and Walton and Weinert's No. 1 Sorrell in the extreme southwest corner of the county on Sinclair Prairie Oil Co. block.

Bastrop County

In Bastrop County, Marts & Beavens' latest test on the Reyes land north of the two producers that constitute the new Cedar Creek Pool is dry and the company has made location south several miles just east of several wells that constitute the Schimmell Pool.

Theodore Hicks has assembled a block of 11,000 acres in Comal County extending from the Guadalupe River, 5½ miles northeast and 3½ miles wide from the Balcones Fault southeast to New Braunfels. A test is to be started on it by the last of the year. Being close to the fault line it will get formations high and has a chance at many formations for pay unless they have been eroded and the hole at an early date runs into schist.

A number of counties between San Antonio and Corpus Christi that for a time were the source of most of the news have been nearly devoid of activity lately. Now there is some renewal of activity. In Bee County, Holland Oil Co.'s No. 1 Copeland, a little north of the Cosden Pool, topped the Jackson at 2,413 feet which is thought to be considerably high. Drilling below 3,200 feet late in the week it had only a few days drilling to reach the Pettus sand producing in the Cosden Pool at below 3,600 feet.

In Nueces County there are three tests, all starting to drill below surface casing, Texon Royalty, a few miles east of the Agua Dulce Field, Banquette Oil Co., first carried as Southwest Drilling Co.'s No. 1 Ingram, a little north of Texon, and Hurlburt and others' No. 1 Poenisch, a few miles south of Corpus Christi.

Wildcat Operations in Southwest Texas

Week Ending October 7

Company, well, farm name, section and block—	Remarks:
ATASCOSA COUNTY	
A. Blume's No. 1 Shaw, 690 ft. from N line, 1,780 ft. from E line of 100-ac. tract in W. Farquhar Sur. No. 275	T.D. 1,996 ft.; reinstated; to resume drlg.
E. C. Burton's No. 1 Smith-Mowinkle, 2,100 ft. from N line, 200 ft. from W line of F. Perez Sur. No. 172.	T.D. 1,001 ft.; abd.
Texio Oil Co.'s No. 1 Reiffert & Frobese, 440 ft. SE along railroad from SE cor. of Blk. 55 of Catalina Hoey Sur. and 390 ft. SW at right angle in Juan Houlihan Sur.	T.D. 690 ft.; abd.
BASTROP COUNTY	
J. E. Emanuel's No. 1 H. Klemm, 81; ft. from W line, 300 ft. from S line of tract in R. S. Teal Sur.	T.D 850 ft; standing.
Ca-Tex O. & G. Dev. Corp.'s No. 1 Pendergrass, 1,343 ft. from NE, 310 ft. from SE line of 130-ac. tract in Henry Warnell Sur.	Rigged up and S.D.
Three Oil Co.'s No. 1 M. Ingram, 1,250 ft. from SW line, 940 ft. from SE line of tract in M. Morgan Sur.	Rigged up.
BEE COUNTY	
Grisham et al's No. 1 Powell, 900 ft. N, 500 ft. W of SE cor. of J. A. Reed Sur.	Drlg. wtr. well.
Holland Oil Co.'s No. 1 Copeland, NE cor. of 400-ac. tract in Pace Sur.	T.D. 3,220 ft.; drlg.
W. P. McLain's No. 1 Weiss, 400 ft. E of line between E. S. Price's Nos. 1 and 2 Weiss	T.D. 1,050 ft.; drlg.
BELL COUNTY	
Gus Winston et al's No. 3 Warrick, 100 ft. N of James Scoggins' No. 1 Warrick, in Elijah Ingram Sur.	T.D. 1,312 ft.; fishing.
R. S. Wilson's No. 1 Davenport, 200 ft. from W line, 700 ft. from S line of J. L. Herred Sur.	T.D. 1,235 ft.; standing.

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Wildcat Activity in North Louisiana Becoming More Marked, With Producers Indicated

By D. H. BANCROFT
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Oct. 9.—Although not reflected in the weekly drilling report, wildcat activity in the North Louisiana district is becoming more pronounced, especially in the northwestern portion of the state on the Sabine uplift, some part of which is practically certain to produce from the Trinity series. Of the several wildcats started, two in particular are getting a play and are considered outstanding hot spots in this area. In addition one or more tests are due within the next few days with good indications for producers.

NORTH LOUISIANA

The Gulf Refining Co. has a block of approximately 10,000 acres, centering around the NW NW Section 20-19-8, Webster Parish, Louisiana. The block covers the west half of Township 19, Range 9, and the east quarter of Township 19, Range 8. A surface structure was worked up on this block in 1919 during the Homer boom but no test was drilled. Several years ago the Gulf Refining Co. took straight commercial leases on the block and since that time has run a torsion balance survey. Recently it completed a seismographic survey, using a core drilling rig for the holes at shooting stations. Immediate operations will begin and a rig will be set to work for a series of core drill holes.

Another interesting test will be made by J. P. Evans, of Shreveport, on a block of 10,000 acres in Webster Parish, centering around Section 27-18-9w. This is a machine high and a well will be drilled to not less than 3,500 feet unless production is found at a lesser depth. This well will be in the center of the SE Section 27-18-9w, and will be known as the No. 1 J. P. Evans, Claud Buicon.

In this district there were eight completions the past week, five of them successful. In addition to the two wildcats mentioned which were not officially reported, there are seven new locations, four within the Converse area, one in the Monroe gas field, one in the Zwolle Division Field and one wildcat in Natchitoches Parish.

The United Gas Producing Co.'s No. 1 Treat, an old well which has been deepened, is located in NW NW Section 14-17-12, Bossier Parish, Louisiana. This is in the Sligo gas field and was completed September 30 as producing slightly less than 750,000 feet of gas.

Caddo Parish

In Caddo Parish, Rodessa district, the United Gas completed its No. 1 Testerman, center N half SW Section 33-23-16w, as a 41,000,000-foot gasser from the total depth of 5,752 feet with a rock pressure of 2,280 pounds. In the NE NE Section 15-21-16, C. G. Gibbons completed No. 1 Burglas Oil & Gas Co. as a salt water well from a total depth of 1,926 feet where it was abandoned and casing pulled. In Catahoula Parish, George Greer and others have abandoned their No. 3 Louisiana Central Lumber Co., located in NE NE Section 2-9-6e, after testing salt water from a total depth of 916 feet. This well blew out when drilling at this depth and was estimated to be making 500,000 feet of gas. It later was drilled to 1,105 feet at which point it tested dry and was plugged back.

In Morehouse Parish the United Carbon Co. completed its No. 1 R. C. Anderson, located in Section 41-21-5. The well is producing 5,500,000 feet of gas from a total depth of 2,293 feet. In Sabine Parish, Zwolle district, the Magnolia Petroleum Co. completed its J. M. Cook, NE NE Section 30-8-11, pumping 30 bbls. Also in Zwolle the Pelican Natural Gas Co. completed its No. 2 Long Leaf Lumber Co., SW NE Section 8-7-11, pumping and flowing 75 bbls. In Webster Parish the Dorcheat Syndicate completed its No. 2 Good Pine Lumber Co., a wildcat in SE SW Section 35-22-10, as a salt water well from a total depth of 2,593 feet. The well was plugged and abandoned.

The Windsor Oil Co. made a new location in Converse district known as the Graham No. 2, in SE NW Section 20-9-13. The same company has made location in SE NW Section 23-9-13 known as the No. 1-A E. L. Graham. W. F. Lacy made a location in NE SW Section 23-9-13 for No. 2 Bowman-Hicks. The Tex-La-Ark Oil Co. has made a location in SW NW Section 23-9-13. In the Zwolle area of Sabine Parish, H. C. Maulding made a location in SE NE Section 3-7-11 for its Van Vickhoven well.

In Ouachita Parish the Hope Producing Co. has started drilling in NW SE Section 36-20-3e in the Monroe gas field and it now is drilling at 831 feet. In Natchitoches Parish George R. Stevens of Shreveport has made a location in SE SE Section 10-5-6w for his No. 1 Clark Boyce Lumber Co. This is an interesting wildcat operation and it is reported that major companies have purchased protection acreage.

Interesting Well in Bossier

Of the drilling wells at the present time attracting attention one of special interest is the No. 1 B. A. Sherrill fee, in NW NW Section 18-19-11, Bossier Parish. This well as previously reported had a strong show of both oil and gas from the Blossom sand at a total depth of 2,207 feet. Six-inch casing was set at 2,154 feet and while washing to bottom after drilling plug, the well blew in with the drill stem in the hole, making at first dry gas. Salt water developed and the well was killed and the casing recemented. The operators believe that water is coming from the Natchitoches sand due to a faulty casing seat. There was no show of oil in the last blowout although the gas flow was estimated at 5,000,000 feet.

Less than half a mile north and east of this well R. Roy drilled his No. 1 Smith in Section 7-19-11, which flowed by heads 15 bbls. of 40 gravity oil per day from a total depth of 2,173 feet. This well was drilled in 1921 and is structurally only 4 feet higher than the Sherrill well. It is more than likely that a Blossom producing field may be discovered within this area. The Sherrill well is about 6 miles south and west of the old shallow Bellevue Field.

W. D. Ball on the No. 1 Hicks Grocery Co., in NE NW Section 18-16-11, set casing at 1,896 feet which is the corrected depth from that previously reported, and has drilled the plug and bailed the well in with an estimated flow of 3,000,000 to 4,000,000 feet per day from a total depth of 1,910 feet. However, there was no liner in the hole and it is possible that by proper completion this well will do better. They are at the present time arranging to set liner and for this reason this well is not reported as a completed well.

In the old Bellevue Field H. I. Morgan is drilling on his No. 2 Smith in the center of the east half of the northeast quarter, having reached the depth of 5,930 feet and is in sandy shale.

In Caddo Parish, Rodessa area, NE NW Section 4-22-16, the Arkansas-Louisiana Pipe Line Co. is coring hard lime at 6,507 feet on the No. 1 Williams & Windhare. In Sabine Parish, H. C. Lessinger's No. 1 Bowman & Hicks, NW SW Section 13-19-13, blew out showing gas and water from a total depth of 8,385 feet with the drill stem in hole. This well has been killed but the drill stem is stuck 7 feet off the bottom. This well has 1,685 feet of open hole, 8⅝-inch casing having been set at 1,500 feet.

ARKANSAS

In Columbia County, C. W. Alworth and others' tested their No. 1 King, SE SW Section 16-19-20, from a total depth of 1,871 feet. This well showed oil, no gas, no water, and is to be deepened. In Miller County the Black Diamond Oil Co. on its No. 1 Miller Land & Lumber Co. topped the Natchitoches sand at 1,812 feet, has drilled to 1,822 feet and is now shut down waiting orders. This well is in the center of SE Section 29-18-27.

MISSISSIPPI

In Lamar County, the Lamar Oil Co., in NE NE Section 18-27-14, has set 5⅞-inch casing at 3,010 feet and is preparing to drill plug.

The daily average runs for Louisiana were short of those of the preceding week by 205 bbls., whereas Arkansas showed an increase of 504 bbls. a gain for the district of 335 bbls. Louisiana produced a total of 25,590 bbls. and Arkansas a total of 32,980. Runs from the various districts are given below:

NORTH LOUISIANA

	Bbls.
Caddo light	4,510
Caddo heavy	1,430
Converse	550
Cotton Valley	460
DeSoto and Red River	1,550
Elm Grove	310
Haynesville	3,868
Holly	205
Homer	2,690
Pleasant Hill	250
Sarepta-Carterville	795
Urania	2,600
Zwolle	6,378
Total	25,590
Last week	25,795
Decrease	205

ARKANSAS

Champagnolle	1,300
El Dorado	2,552
Lisbon	415
Miller County	595
Nevada County	530
Smackover light	2,655
Smackover heavy	21,280
Stephens	650
Urbana	3,000
Total	32,980
Last week	32,440
Increase	540
Both states	58,570
Last week	58,235
Increase	335

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

North Louisiana

BIENVILLE PARISH

Company, well, farm name, section and block—	Remarks:
Poole & Johnson's No. 1 H. E. Sudduth, 1,170 ft. E and S, C Sec. 28-14-16	Derrick.

BOSSIER PARISH

W. D. Ball's Hicks Grocery Co. (was Dr. C. R. Reed, tr.'s) No. 1 C.J.&B., Sec. 18-16-11	Set 4½-in. csg. 1,896 ft.; comp. Oct. 1; est. 7,000,000 ft. gas; T.D. 1,910 ft.
B. A. Sherrell, tr.'s No. 1 fee, NE NW NW Sec. 18-19-11	Bad csg. seat reset.

CADDO PARISH

R. E. Davidson et al's No. 1 DeWitsey MacMillan, 500 ft. N, 330 ft. E, SW cor. Lot 16, Sec. 23-16-13	Location.
J. B. Hutchinson, tr.'s No. 1 Story Phillips, 330 ft. N and E, SW cor. SW NE SE Sec. 28-16-13	Drlg. 1,640 ft.

CALDWELL PARISH

Hartley et al's No. 1 Taylor, most southeasterly cor. Sec. 42-14-4e	Derrick.

CATAHOULA PARISH

Geo. Greer et al's No. 3 La. Central Lbr. Co., 775 ft. E, 260 ft. S, NW cor. NE NE Sec. 2-9-6	Tested S.W. and abd. Sept. 30; T.D. 916 ft.

DE SOTO PARISH

Bailey Gantz et al's No. 1 Jenkins, NW cor. SE SW Sec. 35-13-13	Moving in heavy rig; T.D. 3,090 ft.
J. H. McKenzie's (was P. B. Dyer's) No. 3 B. F. Jenkins, 330 ft. N and E, SW cor. NW SW Sec. 35-15-12	Cmtd. 6-in. 2,430 ft.; S.D.; W.O.
Hirschfield-Bailey Interests' No. 1 Mickle, 660 ft. N and E, SW cor. SE Sec. 7-13-12	Cored chalk 1,772 ft.
N. B. Porter's No. 1 J. W. Porter Est., 330 ft. N and E, SW cor. SE SE Sec. 23-12-13	Tested dry and S.D.; T.D. 1,204 ft.
D. H. Sebastian, Jr.'s No. 1 W. H. Hill et al, 200 ft. S and E, C Sec. 3-10-13	Derrick.

GRANT PARISH

L. L. Lindsey et al's No. 1 Edenborn, 250 ft. E, 150 ft. N, SW cor. SE SE Sec. 13-7-4	Began drlg. Sept. 20; 12½-in. 40 ft.

OUACHITA PARISH

Hope Prod. Co.'s No. 1 Cole Hrs., 150 ft. S, 1,650 ft. W from NE cor. of SE	Began drlg. Sept. 23; set 12½-in. csg. 167 ft.; set 8-in. 831 ft.

SABINE PARISH

Frank R. Foster, Inc.'s No. 1 D. E. Stephens, 330 ft. S and E, NW cor. SE NW Sec. 17-9-11	Top of chalk 1,790 ft; drlg. 2,094 ft.

CONVERSE DISTRICT

Arrock Oil Co.'s No. 1 Hewitt, 330 ft. N and E, SW cor. NE SE Sec. 20-9-13	Began drlg. Sept. 30; set 10-in. 46 ft.; drlg. 70 ft.
A. G. Craig's No. 1 Belton, 330 ft. N and E, SW cor. NW NW Sec. 33-9-13	Derrick.

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Californians Are Warned to Respect Curtailment; Clash Between Two State Regulatory Bodies

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Oct. 9.—The crude oil producers in California have been warned by Umpire J. R. Pemberton that they are playing with dynamite if they continue to disregard curtailment regulations and he advised the few operators who are still out of line to eliminate immediately excess production and thus preclude the necessity of the Federal Government resorting to drastic action. This is particularly true of refining companies who display the Blue Eagle on their gasoline pumps and continue flagrantly to disregard curtailment obligations in the production of crude and natural gas. Umpire Pemberton warned all crude producers that "this is to advise you that enforcement agents of the Department of Interior intend to actively proceed to force curtailment upon those operators who intentionally refuse to play ball. I can assure you that the current month will witness the effects and results of such activity on the part of the Interior Department officials. Operators other than those owning stripper wells which are exempt from curtailment are now obliged to curtail and those who refuse to do so are opponents to an emergency national mandate from Congress and from the President of the United States. It would appear that the saner policy for such opponents of this national emergency would be to carry out the provisions of curtailment orders and occupy themselves in an endeavor to substantiate their position with other operators in the state and the properly constituted committees before flying in the face of the Federal Government."

October Schedule

Although California's daily quota was reduced from 480,000 bbls. which prevailed during September, to 455,000 bbls. during October, California producers were given a favorable break when major holders of stored oil agreed to forego their permitted withdrawal of 15,000 bbls. per day, as this automatically increased the state's allowable from 440,000 bbls. to 455,000 bbls. per day. Under the new schedule for October, San Joaquin Valley fields have been assigned a daily allowable of 170,725 bbls., compared with 180,500 bbls. during September. Coastal fields were given a daily quota of 59,325 bbls., against 62,500 bbls. during September, while Los Angeles Basin fields will be allowed to produce 224,950 bbls. per day during October, compared with 237,000 bbls. during September. Individual daily quotas for the principal fields during October show Kettleman North Dome with an allowable of 59,700 bbls., a reduction of 3,300 bbls. per day. The Midway-Sunset Field will be allowed to produce 49,300 bbls. per day, or 2,700 bbls. less; Elwood, 13,750 bbls., down 750 bbls.; Ventura Avenue, 34,150 bbls., down 1,850 bbls.; Dominguez, 19,000 bbls., down 1,000 bbls.; Huntington Beach, 29,700 bbls., down 1,600 bbls.; Long Beach, 56,900 bbls., down 3,100 bbls.; Playa Del Rey, 9,200 bbls., down 500 bbls., and Santa Fe Springs, 44,300 bbls., down 2,400 bbls. per day.

Curtailment Committee

A controversial issue has arisen with respect to enforcement of the curtailment program involving California fields. Secretary Ickes, when setting the allowable daily production for October, appointed a regional committee to assume charge of curtailment work in California. Early in September the California Central Proration Committee was officially designated by Secretary Ickes as the administrative group for September. It has become quite apparent during the past few days that a controversial issue has arisen between the Regional Committee appointed by Secretary Ickes and the Central Proration Committee, but the matter is expected to be ironed out. Reports indicate that a number of operators favor retention of the Central Proration Committee as the regulatory body.

The question is whether the Regional Committee, appointed by Secretary Ickes, or the Central Proration Committee, elected by producers with certain additions to broaden the representation, would best control enforcement of the code. The Secretary of the Interior has been asked whether the department intended the Central Proration Committee or the Regional Committee to approve a supplemental code submitted to the California industry for approval. Meanwhile, the industry appears to be somewhat divided over this delegation of authority, seemingly to two committees, which although interlocked in membership, yet constitute two individual bodies, one elected by oil operators and one appointed by Secretary Ickes. L. P. St. Clair, regional director of the code in California, and John A. Brown, regional director of crude production, addressed a gathering of operators in the umpire's office early this week and explained their views of what Secretary Ickes has intended in the way of curtailment in California. The issue is of considerable importance because of the necessity of coordinating all branches of the industry and synchronizing production and refining activities. This is imperative because California will continue to dispose of refined products on the Atlantic Seaboard.

Huntington Beach

Uncertainty over the litigation involving production from beneath state tidelands in the Huntington Beach Field resulted in a wholesale suspension of drilling and production activities in that field during the week. Several operators are still drilling and others continue to produce without restraint, although for the most part operators suspended drilling and production activities pending the outcome of the litigation. The decision to suspend operations is attributed to the possibility that the wells may not be allowed to produce upon completion and would represent a useless expenditure. Operators have been advised that the state may possibly be given judgment for the full value of all oil and gas produced if its contention is upheld.

The Camroo Oil Co. completed No. 1 Smith in the Seventeenth Street town lot area of the Huntington Beach Field early in the week flowing 2,340 bbls. of 25.3 gravity oil per day from 4,512 feet, but it was shut in immediately. Camroo's affiliated companies, Macroo Oil Co., Simaroo Oil Co. and Vicaroo Oil Co., likewise shut in their respective producing wells. Milton Oil Corp., after recompleting No. 1 Lewis early in the week flowing 1,700 bbls. of 23.4 gravity oil per day from 4,677 feet, suspended production upon completion to preclude a possible adverse decision. The refusal of pipe line companies to accept the delivery of oil produced from beneath state tidelands until ownership is definitely determined has been an important factor. Pipe line companies are expected to adhere to the policy as several producing companies will probably not have any tangible assets upon which the state can place liens for any damages awarded.

Richfield

J. O. Seeple recompleted his No. 2 in the Richfield district of Los Angeles Basin after redrilling and deepening the hole to 3,660 feet. This well was returned to production flowing 291 bbls. of clean 25.6 gravity oil and 2,000,000 feet of gas per day through two 1-inch beans under a casing pressure of 295 pounds. Geneva Oil Co. failed to recomplete No. 2 McFadden under a natural flow and the company is rigging up a compressor. This well may have picked up a new productive horizon. Very little data is available as to the exact location of the Chapman and Kraemer zones in the Richfield district and this well may have been finished in either one. The Kraemer and Chapman horizons in the Richfield district are quite irregular at several points. The Richfield district was developed before perfection of the core barrel and this, together with a possible deviation of wells from the vertical, may account for the apparent discrepancy in the logs of wells drilled a number of years ago.

Peters Oil Co. failed to develop commercial oil production in its No. 1 Richfield as the well blew in flowing 1,000,000 feet of gas per day through a twenty-four-sixty-fourths inch bean under a pressure of 365 pounds on the casing. Peters' new well was bottomed at 3,905 feet and finished with a 4½-inch liner including 146 feet of perforated. Long Beach Petroleum Co. made a preliminary test on No. 2 Mann after the hole had been redrilled and deepened to 3,782 feet, but the outcome was unsatisfactory. A survey indicated a leak in the tubing and the well will be given another chance to produce on the beam. Standel Oil Co.'s No. 1 McCracken blew out while the crew was running liner following completion at 3,697 feet but it was brought under control. St. Helens Petroleum is making exceptionally good footage in No. 1 Brown, a recent spud, and will probably make a production test within 10 days, as the bit is in the oil sand at 3,704 feet.

Mountain View

Developments in the Mountain View Field of Kern County indicate possibility that the productive limits will be considerably south of the area originally considered as practically proved. The failure of Shell Oil Co. to finish a commercial producer in No. 2 Porter Day, a direct offset to Hogan Petroleum Co.'s discovery well, has been a distinct disappointment as Shell's project was so close to the discovery it seemed almost definitely assured of substantial production. No. 2 Porter Day, finished at 5,838 feet, is flowing by heads at the rate of 65 bbls. of 33.7 gravity oil per day. In contrast with this, Bankline Oil Co.'s No. 1 Symons stands out as one of the biggest surprises since the discovery of the field early this year. No. 1 Symons is almost 2 miles southeast of Hogan Petroleum Co.'s discovery and picked up the oil sand at almost the same depth as the pay was logged in No. 1 Wharton, the discovery well. If Bankline completes No. 1 Symons it will prove all the intervening acreage as potentially productive. Barnsdall Oil Co.'s No. 1 Mott, about 2,500 feet due west of Hogan Petroleum's discovery, has taken on a rather dubious outlook indicating the productive limits are farther east. It likewise indicates that Hogan Petroleum Co.'s discovery is not very far removed from the western edge. This deduction is confirmed by the failure of Shell to develop substantial production in No. 2 Porter Day, less than 1,500 feet north of the discovery well.

Mount Poso

Two new wells were completed in the Mount Poso Field of Kern County and another, No. 1 Glide of General Petroleum, is being rigged up preparatory to being put on the beam within a few days at 1,888 feet. In addition to starting preparations to complete No. 1 Glide, General Petroleum spudded in No. 47 Heisen and has rigs going up for Nos. 26 and 37 on the same property. The new wells listed in the Mount Poso Field this week were No. 2 Glide of Bern Oil Co. and No. 2 Vedder of Ekoh Oil Co.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Sept. 23		Sept. 19			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Fuel oil	.....	.....	49,683	7,098	919,302	.....
Diesel and gas oil	.....	.....	.....	.....	1,200,559	534,120
Gasoline	310,652	44,379	270,132	38,590	8,084,190	6,442,235
Kerosene	80,411	11,487	.....	.....	589,306	154,372
Foreign exports—						
Crude oil	30,389	11,484	5,082	726	5,649,963	6,164,764
Fuel oil	187,924	26,846	120,456	17,208	6,120,377	6,372,752
Diesel and gas oil	109,798	15,685	83,674	11,953	2,501,483	1,825,093
Gasoline	80,514	11,502	.....	.....	4,368,031	6,338,257
Kerosene	.....	...	...	...	1,481,313	3,072,714
Naphtha distillates	.....	...	.....	.....	.....	120,075
Coastwise-domestic—						
Crude oil	185,167	26,452	32,199	4,600	5,627,398	10,632,038
Fuel oil	247,326	35,332	358,761	51,252	7,505,162	8,774,483
Diesel and gas oil	14,413	2,059	.....	.....	866,529	967,462
Gasoline	283,364	40,481	110,597	15,800	9,436,699	11,297,816
Kerosene	5,668	810	.....	.....	149,265	132,093
Naphtha distillates	.....	.....	.....	.....	27,651	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	40,225	5,746	400,078	483,201
Gasoline	72,858	10,408	.....	.....	775,835	844,423
Kerosene	.....	.....	.....	.....	482,430	75,760
Lubricants	9,175	1,311	.....	.....	33,541	23,829
Foreign exports—						
Crude oil	.....	.....	.....	.....	1,320,041	707,651
Fuel oil	.....	.....	.....	.....	1,040,549	798,098
Diesel and gas oil	.....	.....	.....	.....	824,450	519,332
Gasoline	.....	...	77,890	11,127	3,163,072	2,741,900
Kerosene	.....	.....	11,425	1,632	809,705	768,230
Lubricants	.....	.....	.....	.....	96,370	30,094
Coastwise-domestic—						
Fuel oil	13,104	1,872	64,310	9,187	2,565,926	2,226,050
Diesel and gas oil	.....	.....	.....	.....	179,250	321,433
Gasoline	50,107	7,158	38,697	5,528	2,998,174	2,774,572
Kerosene	5,121	732	4,977	711	95,204	84,546
Lubricants	.....	.....	.....	.....	2,751	.....

The former, bottomed at 1,782 feet, was brought in pumping 542 bbls. of 16.4 gravity oil per day, while the latter was finished on the beam doing 306 bbls. of 15.6 gravity oil per day. Two additional wells are nearing completion in the Mount Poso Field and both are expected to be given produciton tests within 10 days. One, George W. Shearer's No. 1 in Section 28-26-28, was drilled from the grass roots to the oil sand at 1,525 feet in less than 10 days.

In the Round Mountain Field of Kern County, Golden Bear Oil Co. completed No. 1 Rex in Section 6-28-29. It was brought in on the beam pumping 210 bbls. of 15.5 gravity oil per day from 1,697 feet. California Western Oil Co. spudded in No. 1 Smoot early in the week and this well, together with Round Mountain Oil Co.'s No. 1 Jewett and Howells Brothers' No. 1-A, made normal progress. Alta Oil Corp. made a technical spud on its lease in the Union Avenue district of Kern County last week and is rigging up. Union Oil Co. rigged up its projected wildcat in the Union Avenue area and drilled and cased the rat hole but has not yet started drilling.

Lost Hills-Belridge

Associated Oil Co. is rotating at 6,050 feet in No. 1 Williamson, a deep test which the company is drilling in conjunction with Richfield Oil Co. and other operators and while several favorable showings have been logged this outpost, in the Lost Hills Field, has not yet logged a sufficient thickness of oil sand to jusitfy a production test. In the South Belridge Field of Kern County, General Petroleum is drilling in No. 1 Berry at 8,700 feet. This deep test has been in brown shale for several thousand feet and the possibility of developing commercial production is dependent upon the company's ability to drill through the brown shale and pick up the anticipated underlying Temblor. It is getting quite deep but cannot be classed as a duster as it has potential possibilities if and when the company can get out of the brown shale. No. 1 Berry has drilled through more brown shale than any other project drilled in the state. After the company reaches the bottom of the brown shale it still has another several hundred feet of hole to drill down into the Temblor before a production test can be made. Ohio Oil Co. is expectd to start drilling in its Buena Vista wildcat within a few days and the outcome will be watched with interest due to the positive reaction of the acreage to geophysical exploration.

Kettleman Hills

North Kettleman Oil & Gas Co. ran into some additional mechanical trouble in No. 1 Lillis-Welsh, the deep outpost in the extreme western end of the Kettlemen North Dome Field, but an early recovery is anticipated. Work was resumed on this 10,944-foot hole about two weeks ago after securing a new string of left-hand drill pipe. The company, upon resuming work, ran in a slip socket with a knuckle joint above the socket and took hold of the fish at 9,655 feet and backed off. After coming out of the hole it was found that the lower half of the knuckle joint and slip socket was lost in the hole. The company made several attempts to recover the fish but was unsuccessful and now finds it necessary to go back in the hole with a new string of right hand drill pipe. Ed McAdams, president of the company, is not discouraged and has full confidence in his ability either to recover the fish or sidetrack it. If he is successful in getting down to the present bottom, 10,944 feet, he contemplates landing a 4¾-inch combination string and cement through perforations somewhat below the shoe of the 7-inch water string, as a water survey test indicated water was entering the hole at approximately 5 feet below the shoe on the water string.

Several wells are expected to be given production tests in the Kettleman North Dome Field within 30 days and the crews will be transferred to other projects scheduled to be spudded in. The Kettleman North Dome Association has rigs up for several new wells and the Standard has material on ground for Nos. 74-19-J, 58-27-J and 45-1-P. Union Oil Co. is expected to recomplete No. 2 Amerada King within 10 days and will probably be in a position to make a production test on No. 4 within six weeks, as the bit is at 5,700 feet. Superior Oil Co. picked up the top of the upper variegated at 7,418 feet and landed a string of 9⅝-inch at 7,507 feet. A satisfactory water shutoff was effected and the company is again making hole.

San Miguelito

Operators in the San Miguelito Field of Ventura County submitted their development program for orderly drilling signed by all operators and this was subsequently approved by the Secretary of the Interior. As a consequence, this field was assigned a definite quota and operators will be permitted to produce in accordance therewith. Practically all of the potentially productive acreage is held by Continental Oil Co. and the Chanslor-Canfield Midway Oil Co. Operators in the Kettleman Middle Dome also submitted their drilling program and this was likewise approved by Secretary Ickes. The Kettleman Middle Dome and the San Miguelito Field were the only new fields in California that conformed with the code requirements in time to receive quotas for October. The deep zone at Montebello, deep zone at Mount Poso and other similar areas failed to agree on future development work and will not be permitted to produce until operators in these areas conform with the code.

Signal Oil & Gas Co. appears to have a dry hole in No. 2 on tideland permit No. 98 in the Elwood Field of Santa Barbara County, which has already reached 4,575 feet without picking up the pay in the Sespe. This well still has a chance of developing commercial production, but the outlook is dubious. Operators in the Elwood Field will not be permitted to produce from the Sespe formation during October but may be assigned quotas during November provided code requirements are fulfilled. Several wells in this field are headed down to the Sespe, proven as highly productive by Barnsdall and Rio Grande a few years ago.

General Petroleum has recompleted No. 15-A Barnard, a deep well in the Ventura Avenue Field, but it will be 24 hours before its status is determined. It has just been returned to production flowing at the rate of 2,500 bbls. per day but the outcome of work depends entirely upon whether the water trouble has been overcome. General Petroleum originally gave it a test at 9,000 feet but has been plugging back by stages in an effort to secure clean production. Associated Oil Co., which is drilling five wells in the Ventura Avenue Field, is rigging up rotary equipment in No. 27 Ventura Land and Water. Shell is drilling two wells in this field and has a new rig standing for No. 79 Taylor. Standard has shut in No. 1 Chase & Bryce, a recent completion in the Goleta gas field, and will probably suspend development for the present. Monterey Exploration Co. is rotating in No. 1 Hollister, a wildcat in the Point Concepcion district of Santa Barbara County at 3,510 feet, but has not yet encountered an oil sand of any importance.

Coyote

Associated Oil Co. is rigging up rotary equipment in No. 56 Anaheim in the East Coyote Field of Los Angeles Basin, preparatory to a resumption of drilling at 2,699 feet for the purpose of determining deep zone possibilities. Associated recently quitclaimed approximately 400 acres of the Anaheim Union Water Co. property and H. A. Bardeen immediately stepped in and leased the property given up by the Associated. The acreage quitclaimed by the Associated has been productive for a number of years and was crossed off the books due to depletion. Bartholomae Oil Corp. is rigging up rotary equipment in No. 1 Stern and should begin making hole within 15 days. This well is on property adjacent to the Stearns property of Union Oil Co., and this well appears to have considerable merit. In the West Coyote Field, Standard has recompleted No. 53 Emery on a compressor doing 280 bbls. of 27.6 gravity oil per day. This company is making preparations to start drilling operations on Nos. 54 and 55 on the Emery lease and No. 115 Murphy Coyote.

In the Long Beach Field, Signal Drilling Co. has completed No. 1 Reggio pumping 451 bbls. of 28.5 gravity oil per day from 4,826 feet, the hole having been finished with a 4¾-inch liner carrying 780 feet of perforated. The Shell Oil Co.'s No. 9 Alamitos in the Long Beach Field was given a preliminary production test early in the week after being cleaned out to bottom, 4,400 feet, but the result is unsatisfactory as current production, 72 bbls., is cutting approximately 75 per cent and will require further work. Universal Consolidated Oil Co. has recompleted No. 1 Cruz, the deep zone discovery in the Montebello Field, but will not be permitted to produce until operators in the field agree on a development program. Universal Consolidated, subsidiary of Richfield Oil Co., has been working on No. 1 Cruz for several weeks to open up as much formation as possible without developing bottom water. This well came in wet a month or so ago but the water problem was overcome when the company plugged back the bottom of the hole and recemented the water string. It has never been definitely determined whether the water was due to mechanical trouble or formation water.

CHARLES PIEZ DEAD

Charles Piez, 67, who with Charles M. Schwab, directed the wartime work of the Emergency Fleet Corp. died October 2 in the Garfield Hospital, Washington, D. C. Mr. Piez was chairman of the board of the Link-Belt Co., Chicago. He was a past president of the American Society of Mechanical Engineers and served twice as president of the Illinois Manufacturers' Association.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—	S.T.R.	Depth	Status:
Palm Ridge Oil Co., No. 1 Palms, Los Angeles Co.	2- 2-15	7,150	suspended
Pacific Gulf, No. 1 Athens, Los Angeles Co.	19- 2-13	6,034	suspended
Pacific Dev. Co., No. 1 Wilmington, Los Angeles Co.	16- 2-13	901	cemented
Wilmington Oil Co., No. 1 Wilmington, Los Angeles Co.	28- 4-12	4,340	sd. sh. drilling
Sunrise Pet. Co., No. 1 Dominguez, Los Angeles Co.	3- 4-13	5,150	sd. sh. drilling
Oakes & Mead, No. 1 Lyndwood, Los Angeles Co.	31- 2-12	4,940	redrilling
Celito Oil Co., No. 1 Monterey Park, Los Angeles Co.	25- 1-12	5,319	cleaning out
Community Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	5,281	suspended
Universal Consd., No. 2 Montebello, Los Angeles Co.	5- 2-11	706	sd. drilling
Universal Consd., No. 3 Montebello, Los Angele Cso.	5- 2-11	rig	suspended
Nance, M. K., No. 1 Montebello, Los Angeles Co.	6- 2-11	rig	suspended
Signal Pet., No. 1 Puente, Los Angeles Co.	14- 2-10	4,908	plugging back
Gulbersen, S. A., Jr., No. 1 Sunset Beach, Los Angeles	16- 5-11	rig	suspended
Willetts Pet., No. 1 Saugus, Los Angeles Co.	35- 5-16	2,074	suspended
Alpha Oil Co., No. 1 Calabasas, Los Angeles Co.	22- 1-18	1,317	testing
Marble, Willard, No. 1 Van Nuys, Los Angeles Co.	6- 2-16	2,460	suspended
Plymouth Oil Co., No. 1 West Coyote, Los Angeles Co.	24- 3-11	4,707	hd. sd. drilling
Vaqueros Major Oil Co., No. 1 Huntington, Orange Co.	tideland	mtl.	building pier
Nuoil Co., No. 1 Newport, Orange Co.	29- 6-10	5,015	sd. sh. drilling
Mineral Exploration Co., No. 1 Capistrano Co.	8- 8- 7	4,302	suspended
Saddleback Oil Co., No. 1 El Tora, Orange Co.	3- 6- 7	80	suspended
Placentia Dev. Co., No. 1 Placentia, Orange Co.	31- 3- 9	2,708	sd. sh. drilling
Brown, W. F., No. 1 Atwood, Orange Co.	26- 3- 9	rig	suspended
Rubens, Sy, No. 1 Atwood, Orange Co.	19- 3- 9	rig	rigging up
Bartholomae Oil Co., No. 1 Coyote, Orange Co.	22- 3-10	mtl.	building rig
Spindle Top Oil Co., No. 1 Salton Sea, Riverside Co.	25- 7-10	3,590	suspended
Great American Pet., No. 1 Chino, San Bernardino Co.	18- 2- 8	2,660	milling
Great American Pet., No. 3 Chino, San Bernardino Co.	18- 2- 8	1,596	fishing
McCarthy, C. F., No. 1 Chino, San Bernardino Co.	14- 3- 6	803	sd. sh. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S.T.R.	Depth	Status:
Monterey Expl., No. 1 Point Concepcion, Santa Barbara.	33- 5-33	3,483	sd. sh. drilling
Lincoln Drlg. Co., No. 3 Summerland, Santa Barbara Co.	21- 4-26	1,556	cleaning out
Meganos Oil Co., No. 1 Purisima, Santa Barbara Co.	28- 8-34	2,840	br. sh. drilling
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-10-27	3,601	gr. sd. drilling
Woodrow Pet., No. 1 Rincon, Ventura Co.	4- 3-24	7,602	repair pipe
Bardeen Pet., No. 1 Fillmore, Ventura Co.	13- 4-19	3,230	prod. test.
Hancock Oil Co., No. 1 Fillmore, Ventura Co.	13- 4-19	2,373	prod. test
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1- 4-19	....	road
Driggs Pet., No. 1 South Mountain, Ventura Co.	17- 3-20	1,020	sd. sh. drilling
Kneiper & Atha, No. 1 Bardsdale, Ventura Co.	7- 3-19	899	suspended
Williamson & Donaher, No. 1 Simi, Ventura Co.	36- 3-18	801	sd. sh. drilling
Dabney, H. R., No. 1 Simi, Ventura Co.	22- 2-18	1,000	suspended
C. C. M. O., No. 3-A Miguelito, Ventura Co.	23- 3-24	4,166	suspended
Midlands Pet., No. 1 Ojai, Ventura Co.	9- 3-23	7,841	redrilling
Wilshire Oil Co., No. 1 Sulphur Mountain, Ventura Co.	20- 4-21	2,198	suspended
Kirk, W. A., No. 1 Sulphur Mountain, Ventura Co.	21- 4-21	865	hd. sd. drilling
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22- 4-21	1,570	br. sh. drilling
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	5,000	suspended
International Oil Developers, No. 1 Comejo, entura Co.	33- 2-20	2,810	cleaning out
Hub Pet. Co., No. 1 Gould Hills, Kern Co.	22-29-21	6,0[illegible]	su p.ded
Purman, T. H., No. 2 Gould Hills, Kern Co.	27-29-21	335	suspended
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	4,901	gr. sh. drilling
General Pet., No. 1 Belridge, Kern Co.	30-28-21	3,700	br. sh. drilling
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	17-26-18	3,270	suspended
Lincoln Pet., No. 1 Devils Den, Kern Co.	10-25-18	2,172	suspended
Hanna, Tom, No. 1 Devils Den, Kern Co.	25-25-18	3,516	suspended
Pyramid Hills Oil Co., No. 1 Devils Den, Kern Co.	24-25-18	4,140	fish D/P
Fowler, F., No. 1 Blackwell Corner, Kern Co.	15-26-19	3,170	suspended
Associated, No. 1 Lost Hills, Kern Co.	2-26-20	6,070	sd. sh. drilling
Howells Bros., No. 1 Round Mountain, Kern Co.	32-28-29	1,260	hd. sd. drilling
Keno Pet. Co., No. 1 Lerdo, Kern Co.	14-29-27	4,571	suspended
Ohio Oil Co., No. 1 Buena Vista Lake, Kern Co.	31-31-26	rig	rigging up
Caravel Pet. Co., No. 1 Edison, Kern Co.	19-30-30	1,801	suspended
Union Oil Co., No. 1 Union Avenue, Kern Co.	15-30-28	rig	rigged up
Alta Oil Co., No. 1 Union Avenue, Kern Co.	6-30-28	429	sd. drilling
Shell Oil Co., No. 2 Mountain View, Kern Co.	29-30-29	5,8[illegible]3	shut in
Hogan Pet. Co., No. 2 Mountain View, Kern Co.	29-30-29	5,194	sd. sh. drilling
Bankline Oil Co., No. 1 Mountain View, Kern Co.	4-31-29	5,950	cemented
Barnsdall Oil Co., No. 1 Mountain View, Kern Co.	31-30-29	6,150	sd. sh. drilling
Long Beach Pet., No. 1 Mountain View, Kern Co.	29-30-29	5,500	sd. sh. drilling
Mohawk Pet., No. 1 Mountain View, Kern Co.	30-30-29	5,958	will abd.
Mohawk Pet., No. 2 Mountain View, Kern Co.	30-30-29	5,650	sd. sh. drilling
Mohawk Pet., No. 3 Mountain View, Kern Co.	30-30-29	4,180	sd. sh. drilling
Comanche Oil Co., No. 1 Comanche, Kern Co.	15-32-29	rig	suspended
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-11-19	4,483	suspended
Gatton & Luethe, No. 1 Madera, Madera Co.	32-10-17	3,020	cemented
Russ Oil Synd., No. 1 Kingsburg, Fresno Co.	20-12-11	2,791	gr. sh. drilling
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	12-12-11	4,206	hd. sh. drilling
Graham & Loftus, No. 1 Raisin City, Fresno Co.	20-15-18	5,906	suspended
Emerich Oil Co., No. 1 Mendota, Fresno Co.	35-13-13	3,820	suspended
Western Gulf, No. 1 S. P., Fresno Co.	3-17-15	5,747	sd. sh. drilling
Schmeizer, R. F., well No. 1, Fresno Co.	36-16-14	rig	suspended
Hogan Pet. Co., No. 1 Joaquin Ridge, Fresno Co.	28-20-16	6,605	suspended
Superior Oil Co., No. 1 Jacalitos, Fresno Co.	6-22-16	5,406	sd. sh. drilling
Kent & McDonald, No. 1 Carrizo Plains, San Luis Obispo	3-32-22	3,830	suspended
Paso Robles Oil Co., No. 1 Edna, San Luis Obispo Co.	27-27-11	4, 91	suspended
Guess, E. B., No. 1 Corcoran, Kings Co.	7-21-21	6,797	suspended
Brown, A. M., well No. 3, Kings Co.	10-23-19	1,205	to deepen
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	6,873	suspended
Dudley Dome Oil Co., well No. 2, Kings Co.	9-23-20	rig	rigged up
Magee & Stone, No. 2 Alpaugh, Kings Co.	33-21-22	3,149	resume work
Cardinal Oil Co., No. 1 Los Banos, Merced Co.	26-10- 9	rig	rigged up
Merced Oil & Gas, No. 1 Chowchilla, Merced Co.	2- 9-16	rig	suspended
Na-Pa Oil Co., No. 1 Griffith, Napa Co.	7- 8- 3	2,750	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	5- 2-10	4 815	redrilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo Co.	23-12- 3	5,350	gr. sd. drilling
Buttes Oilfields Co., No. 1 Marysville, Sutter Co.	35-16- 1	2,731	gas—shut in
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	34-16- 1	3,708	sd. sh. drilling
Tehama Pet. Co., well No. 1, Glenn Co.	4-22- 5	4,696	cemented

Artesia Pool Extended Towards North and East; Buckingham, Colo., Test Nearing Objective

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Oct. 9.—After two months without a well drilling in the Hobbs Pool, one new operation is starting up. The Carter and Continental test in the the South Eunice area was dry and abandoned. A well marking an extension of the Artesia Pool to the north and east is attracting attention and probably will make 50 bbls. per day. There were no new locations in New Mexico. In Colorado, the Ramsey test in the Buckingham district appears to be running high and is drawing near the first objective. There were no completions or new locations.

Wyoming is asking an allowable of 10,000 bbls. per day of black oil above the Federal allocation. Two completions were reported in the Osage Field for 50 and 20 bbls. One well was abandoned in Osage and another in Hot Springs County.

Two completions were reported in the Cut Bank Field in Montana, one for 20 bbls. and the other for 200 bbls. Kevin-Sunburst Field is showing an increase in drilling activity.

NEW MEXICO

Lea County

One operation is active in the Hobbs Pool in the Shell Petroleum Corp.'s No. 3 Grimes, SW NE SW Section 28-18-38, which is rigging up rotary. This well was spotted two months ago, but it remained idle until the past week when orders were given to go ahead.

Carter Oil Co. and Continental Oil Co.'s No. 1 State, C NE NE Section 28-22-35, a wildcat west of the South Eunice Pool, was dry and abandoned at 4,474 feet, total depth. No shows of oil or gas were encountered. It topped the anhydrite at 1,820 feet and the salt at 1,985 feet. The base of the salt was at 3,331 feet and the top of the brown lime at 3,856 feet. The elevation is 3,547 feet.

Cranfill & Reynolds' No. 4 State, C Lot 10, Section 2-21-33, Lea Pool, was listed as a completion the past week after being treated with 600 gallons of muriatic acid. The pay was at 3,758-66 feet and total depth 3,763 feet. It pumped 300 bbls. the first day and 161 bbls. the second day. The top of the anhydrite was at 1,735 feet and the salt at 1,875 feet. The base of the salt was at 3,420 feet and the top of the lime at 3,447 feet. The elevation is 3,796 feet.

In the Jal area, Western-Anton's No. 1 Conditt, C SW SW Section 12-25-36, is drilling at 3,081 feet in lime. First gas, 2,000,000 feet per day, was encountered at 2,825 feet, with an increase at 2,840 feet. There was another increase at 2,965 feet. Continental Oil Co.'s No. 2 McCallister A-24, NW NE NE Section 24-26-36, is drilling in salt at 2,260 feet.

Eddy County

Van P. Welch, Jr., and others' No. 1 State, NW NE SE Section 22-17-28, Artesia district, which has attracted considerable attention as opening an extension to the Artesia Pool, is bottomed at 2,029 feet in gray lime with 1,600 feet of 27.5 gravity oil in the hole. The 2-inch tubing is being run to pump. It is estimated at 50 bbls. per day. The location is 2 miles north and east of the nearest producer.

Flynn, Welch & Yates' No. 66 State, NW SE SE Section 30-18-28, Artesia area, will be deepened from 1,970 feet, where it stopped to make a test.

In the Maljamar area, C. H. Lockhart and others' No. 2 Root, C SW SW Section 7-17-30, has drilled out cement after setting the 6⅝-inch at 2,840 feet, and the Grayburg Oil Co.'s No. 4 Burch, C SE NW Section 19-17-30, is drilling at 2,970 feet in gray lime.

Ralph Spearow and others' No. 1 McClellan, SW NW NE Section 22-22-23, Indian Creek district, is drilling at 3,878 feet in black lime.

In the Jackson area, the Western Drilling Co.'s No. 2-A Green, C SW NE Section 29-17-29, is drilling at 2,400 feet in lime, and Harry Leonard's No. 9 State, SE cor. NW Section 22-17-29, is drilling at 520 feet in salt.

Chaves County

George Etz and others' No. 1 Duke, C SE NE (cor.) Section 14-8s-26, Railroad Mountain district, is spudding.

San Juan County

The principal activity in San Juan County is in the Aztec district. R. C. Oswell & Son's No. 4 Government, SW NW NW Section 34-30-11w, near two small producers, is drilling at 700 feet and carrying the 8¼-inch. Sanford S. Bashaw's No. 1 Stallings, SW NW NW Section 1-29-16, is shut down at 760 feet. Meier & Culberson's No. 1, NE Section 32-30-11w, is preparing to run the 6⅝-inch at 250 feet after straightening crooked hole. Aztec Producers, Inc.'s No. 1 State, NW NE Section 16-29-11w, was not commercial at 850 feet and is drilling deeper. McCoy & Phillips' No. 1 Martin, NE SE NW Section 34-30-11, pulled the 6⅝-inch to straightream to bottom at 600 feet. Fred Barrett's No. 1 Hart, SW NW SW Section 11-29-11, pulled the 5⅞-inch to straightream to bottom at 1,400 feet.

COLORADO

Weld County

Northeastern Colorado again is in the limelight due to the important test of the Ramsey Petroleum Co. in the Buckingham area, being at a critical depth. Ramsey's No. 1 Scriven, C NW Section 22-7n-59, Buckingham area, is drilling at 6,452 feet and is due to reach the top of the Muddy at around 6,750 feet. The Timpas lime was not cored but from the returns it is estimated that the base of the lime was between 6,345 and 6,350 feet. This puts it about 20 feet higher than in the same company's No. 1 St. Anthony, the gas well, three-quarters of a mile to the northeast. Not only does the outcome of this test have an important bearing on future wildcatting in that territory, but it is a factor in the natural gas situation in Denver. The Public Service Co. of Colorado at present supplies natural gas from the Amarillo Field in Texas and pays the Colorado Interstate Gas Co. 40 cents per 1,000 feet at the city gate. The franchise, however, puts the company in a position to avail itself of a cheaper gas supply should one be developed. Denver is in the midst of a campaign for cheaper gas and the distributing company claims to be unable to reduce its rates as long as it has to pay the 40-cent price provided for in its contract with the Interstate company. If the Ramsey test should come in as a gasser of any considerable size, it will open a number of interesting possibilities. However, it is planned to test the Dakota in this well for oil and if that horizon shows saturation it will go a long way to hasten the big wildcat play which Colorado is believed to have in sight for next spring. A number of independents from Oklahoma, Louisiana and Texas are now investigating the possibilities in this state and some dealing for acreage is reported under way. Colorado's allowable under the NRA code is only 2,400 bbls. per day, the present production, and consumption in the state is between 25,000 and 30,000 bbls. daily, which gives a big leeway for the state before the state's production would go into interstate commerce to any extent. Consumption also is far ahead of the state's refining capacity and with the limitations already on the older fields, the wildcatters are looking upon this territory as the next best bet in the search for new pools.

Several additional tests are practically certain for eastern Colorado at an early date regardless of the outcome of the Buckingham well. Ramsey Petroleum Co. has almost finished leasing up a block extending 6 to 9 miles north of Limon, in Lincoln County, and 12 miles east of the Buick test which has been shut down for some time. The company has obtained all of the state land and all of the Union Pacific land in the district. Efforts of outsiders to get some acreage in the block have not met with much favor as Ramsey has shown a willingness to give Colorado a chance and landowners have shown a disposition to play with him. Since it became known that Ramsey was blocking the area, some trading in royalties has taken place, but most of the operators feel that he should have the play and have not tried to get in.

Moffat County

Mountain Fuel Supply Co.'s No. 2 Florence Wilson, C NE NE Section 22-12-100, Hiawatha Dome, is coring and drilling at 7,137 feet. Contract was up at 7,000 feet, but is planned to continue as long as the drilling is good, or to the base of the Mesa Verde. It is estimated that around 1,500 feet of the Mesa Verde still lies beneath the bottom of the hole. The same company's No. 1 Wheeler, SE NW NW Section 30-12-100, is drilling at 1,650 feet, and the Texas Co.'s No. 1 Van Schaick, SW cor. Section 19-12-100, is shut down at 118 feet. Rocky Mountain Gas Co.'s No. 1 Eberle, SE SW SE Section 9-6n-91, Craig Dome, is standardizing at 3,560 feet to drill deeper into the Morapas sand, which showed a little gas at the top. The Texas Co.'s No. 1 Iles Investment, SE NW Section 23-4n-92, Iles Dome, is driling at 2,841 feet in hard gray lime and shale.

Fremont County

Cherry Creek Placer Co.'s No. 1 Lucas, SW cor. NE Section 32-18-69, Florence district, is drilling at 3,025 feet in blue shale.

Boulder County

Consolidated Smelting & Metals Co.'s No. 1 Blubaugh, SE cor. Section 20-3n-70, Lyons district, is drilling at 1,050 feet in what the drillers describe as the Sundance, with a small show of oil.

Logan M. Hines, of Denver, president of the Midland Oil Refining Co., which last year completed a refining plant near the Continental Oil Co.'s plant north of Denver, was freed of charges of violating the Colorado blue sky law in connection with the sale of the company's stock in El Paso County. Foreclosure proceedings against the company was allowed in the district court at Brighton on a 38-acre tract adjoining the refinery. This action, officers state, was for the purpose of clearing up the title and in no way involves the land upon which the refinery is located.

WYOMING

The committee composed of Gov. Leslie A. Miller, Land Commissioner C. H. Fitzpatrick, and Mineral Supervisor Pierre La Fleische, which is prorating the Wyoming allowable outlet under the NRA code among the fields of the state, has petitioned Administrator Ickes to let the present allowable of 30,050 bbls. daily for the state remain as it is for light oil and give the state an additional allowable for 10,000 bbls. daily of black oil. The state is producing its present allotment and this leaves little room for the expansion of the black oil market which is desirable in view of the extensive road building in sight for next spring when road oil will be in heavy demand.

Weston County

Two completions were reported in the Osage Field. The Federal Oil Co.'s No. 5, SE cor. Section 15-46-64, found the sand at 1,868-82 feet and will pump 20 bbls. per day. It will be given a shot. Chadron-Osage Oil Co.'s No. 23, NW NE SW Section 14-46-64, is pumping 50 bbls. per day from sand at 1,880-90 feet after being shot with 35 quarts.

Yellowstone Oil Co.'s No. 4 Butcher, SE NW NW Section 23-46-64, topped the pay at 1,852 feet and is running pipe. It looks as if it will make a nice well. Riggs Oil Co.'s No. 3, SE NE Section 16-46-64, is drilling at 2,400 feet. The Paymac Oil Corp.'s No. 1 Toyne, SE NW NE Section 3-46-64, which has been standing for some time at 1,650 feet, is preparing to abandon. Hugh Updike & Son's No. 1, NE cor. Section 22-46-64, is drilling at 1,700 feet, and the Western States Oil Co.'s No. 9 Bock, SE NW Section 14-46-64, is drilling at 1,600 feet.

J. H. Voorhees and others' No. 1, NE cor. NW Section 26-48-64, Pump Creek, had a show of oil in the Dakota at 258 feet.

Crook County

Baker Exploration Co.'s No. 1, NE NW Section 20-49-66, Kara district, is drilling at 1,775 feet.

Natrona County

Midway Oil Corp.'s No. 1 Boyer, SW NE NE Section 23-35-79, Midway Dome, is drilling at 3,200 feet.

Carbon County

Ohio Oil Co.'s No. 2 Hazlett, NE NE Section 34-23-79, Allen Lake, found water in a sand topped at 1,760 feet. It is still in sand and drilling at 1,860 feet and will go to the Tensleep. The Morrison sand had a show of gas.

Mutual Oil Syndicate's No. 9 Dutton Creek, NW NE Section 12-18-78, is fishing at 4,658 feet, total depth.

Park County

V. M. Kirk's No. 1 Government, SW cor. Section 24-58-98, Frannie Dome, set the 12½-inch at 60 feet and is drilling with rotary at 350 feet.

Hot Springs County

Empire State Oil Co.'s No. 4 Republic, NE cor. NW Section 14-44-98, Hamilton

Dome, is bottomed at 1,650 feet and underreaming at 1,600 feet.

C. C. Landis and others' No. 1, SE NE NW Section 21-43-92, Kirby Creek, was abandoned at 588 feet. It had water in sand at 570-80 feet.

MONTANA

A meeting of Montana oil men was held in Great Falls the past week to form a regulatory body and oil code to control the industry within the state. It was called by LaRue Smith, of the Texas Pacific Coal & Oil Co., and others. A list of 15 names was compiled to be submitted to the governor with a request that he appoint five of these through the proper channels. The members divided up into producing, refining and marketing groups for discussion and all but the marketing division came back with recommendations for the appointment of the committee. The refiners are expected to operate through the old marketers code committee in harmony with the regional officials under NRA. Since the governor has no statutory authority to name a regulatory body, it is considered probable that the state committee appointed under the national code will act for the state. This provides for matters going from the state committee, through the regional committee, up to the administrator.

Glacier County

Two completions were reported in the Cut Bank Field. The Alberta-Pacific Consolidated Oil Co.'s No. 2 Kiesel, SE cor. NW Section 11-34-6w, is pumping 20 bbls. per day from the Darling at 2,841-65 feet. Montana Headlight Oil Co.'s No. 1 Britton, NW SW NE Section 14-34-6w, is making 200 bbls. per day on the pump from the pay at 2,865-85 feet.

Dakota-Montana Oil Co.'s No. 2 Haglund, Jr., NE NE Section 14-34-6w, may make a small well. It found the Darling at 2.830-57 feet and was shot with 10 quarts.

W. M. Fulton and others' No. 2 Haggerty, C NW NW Section 15-34-6w, has skidded rig from No. 1 Haggerty and is rigging up. L. R. Hannah and others' No. 1 Peterson, SW NW NW Section 29-32-4w, is spudding. Montana Headlight Oil Co.'s No. 2 Miller, SW cor. NE Section 11-34-6w, is still a location. The Montana Power Gas Co.'s No. 1 Miller, SW NE NE Section 4-35-5w, is drilling at 1,910 feet, and its No. 1 Teterud, near C W half, Section 2-35-5w, cemented the 12½-inch at 437 feet. Nyhagen-Bell's No. 1 Anderson, SE NE SW Section 26-35-6w, is drilling at 1,050 feet, and the Par Oil Co.'s No. 2 Haines, SE cor. SW Section 2-34-6w, is spudding at 360 feet.

Santa Rita Oil & Gas Co.'s No. 1 Cardwell, C NE SE Section 15-35-6w, is drilling at 2,855 feet. It had 1,500,000 feet of gas at 2,824 feet and a show of oil at 2,850 feet.

R. C. Tarrant's No. 2 Britton, SW NW SE Section 14-34-6w, is shut down for water at 385 feet and his No. 1 Carman, C NW NW Section 19-34-5w, is standing with the 10-inch cemented at 513 feet. Tarrant's No. 3 Haglund, Jr., C SE NE Section 13-34-6w, is flowing intermittently through 1-inch tubing with a back pressure of 500 pounds. Total depth is 2,761 feet and last week it came in flowing 45 bbls. over night. Tarrant's No. 4 Haglund, Jr., C SE SE Section 13-34-6w, has skidded rig from No. 2. His No. 1 Larson, C SW NE Section 12-34-6w, is drilling at 2,145 feet, and his No. 2 Miller, C SW NE Section 24-34-6w, is rigging up. Tarrant's No. 1 Winkler, C SW SW Section 23-35-6w, is rigging up.

The Texas Co.'s No. 1 Fisk, C NW NE Section 14-35-6w, after plugging back to 2,950 feet, is erecting derrick. Its No. 1 Haggerty, SE cor. Section 9-34-6w, is drilling water well, and its No. 1 Hinkle, NW cor. NE Section 2-34-6w, is rigging up and drilling water well.

Liberty County

J. H. Hamilton and others' No. 1, C NE SW Section 10-37-5e, Flat Coulee, spudded and shut down to complete rigging. Location 's one-quarter mile north of the Sunburst Oil & Refining Co.'s No. 1, which was drilled to 2,680 feet in 1928 and had some gas.

Toole County

C. Leonard Smith and others' No. 1, SW cor. SE Section 7-33-e, East Shelby, is drilling at 210 feet.

In the Kevin-Sunburst Field, A. H. Blaze's No. 2 Burwash, SE NE SW Section 13-34-1w, is drilling at 1,225 feet. It had a dry sand at 982-1,045 feet. McClure's No. 1, SW NW NE Section 4-35-1w, is drilling at 1,200 feet, and the California Co.'s No. 16 Smoke, SW NW NW Section 27-35-2w, is drilling at 627 feet. Mickener & DeGroat's No. 3, C SE SW Section 10-34-2w, is drilling at 400 feet, and the Rocky Ridge Syndicate's No. 1, SE cor. NE Section 11-35-3w, set the 8¼-inch at 969 feet and is drilling at 1,340 feet.

PASCAL POIRER DIES

OTTAWA, Ontario, Oct. 7. — Pascal Poirer, a member of the Canadian Senate, died at Ottawa recently, aged 81. He was at one time active in oil development on Manitoulin Island, where a number of shallow tests were drilled.

Further Testing in Section South and West of Turner Valley Crude Naphtha Production

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Oct. 7.—Official figures of the crude oil production of all Alberta fields, issued by the department of lands and mines at Edmonton, show a total of 87,192 bbls. for August, compared with 87,207 bbls. in July.

In the Mercury tract, South Turner Valley, Miracle Oils' No. 2, LSD 16, Section 5-19-2w5. is being finished at 6,8 0 feet. The test got the lime at 5,940 feet and its main production in the lower lime. It has been recently averaging 103 bbls. a day. The production is a light crude where the majority of Turner Valley wells in the lime horizon have yielded crude naphtha. Location is on the western flank of the structure, and it is probable the light crude strike at this point will lead to further testing in this section south and west of the crude naphtha production.

Gas Flow in Dalhousie

In Section 28-18-2w5, South Turner Valley, Becker Syndicate's No. 2 Anaconda, LSD 15, has encountered a substantial wet gas flow at 4,620 feet, apparently in or near the top of the Dalhousie sand. Merland Oil Co.'s No. 1, Section 27-18-2w5, some 1,500 feet east of No. 2 Anaconda, got a large wet gas flow with some crude naphtha recovery in the Dalhousie, but after taking production for a time was deepened to the lime by Imperial Oil, Ltd. No. 2 Anaconda was started by the Becker syndicate primarily as a test of the Dalhousie horizon which was thought to offer good possibilities of commercial production. Merland's No. 1 got its big production in the Dalhousie at 4,770 feet, and the possibilities of No. 2 Anaconda in this horizon cannot be determined till the same depth is reached.

In the same section, Mar-Jon Oil Co.'s No. 2 Kindersley, LSD 10, is reported drilling below 3,145 feet with the log checking satisfactorily. Pacalta Oils' No. 1, LSD 7, is drilling around 2,580 feet with 13⅜-inch pipe close behind the tools at 2,500 feet. Publix Oil & Gas Co.'s No. 1, LS D8, is straightening crooked hole below 750 feet. It was previously drilled to around 1,600 feet. Spooner Oils' No. 5 Anaconda, LSD 1, has started drilling with cable tools. Sunburst-Mid Royal's No. 1, LSD 14, is unofficially reported drilling below 1,500 feet.

South Turner Valley

In the Mercury tract, Associated Royalties' No. 1 Spray, LSD 9, Section 5-19-2w5, is reported running 13⅜-inch casing preparatory to making new hole from 3,350 feet. This test is just south of Miracle Oils' No. 2 light crude producer.

Sterling Royalties' No. 1, LSD 1, Section 33-18-2w5, is drilling below 4,020 feet. Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is preparing to resume after cementing 13⅜-inch casing at 2,865 feet. Northwest Co.'s No. 1 C. and E. Longview, LSD 5, Section 27-18-2w5, has completed road to location and is working on derrick. The test, drilled by Imperial Oil interests on Calgary & Edmonton Corp. acreage, will offset Publix Oil & Gas Co.'s No. 1. Doralta Royalties' No. 1, LSD 16, Section 32-18-2w5, is doing some preliminary work on location.

Far South Tests

In the far south end of the field, Hoffar-Lundy Syndicate's No. 1, LSD 13, Section 22-18-2w5, is unofficially reported drilling around 3,5 0 feet. Highwood-Sarcee Oils' No. 1, NE Section 21-18-2w5, is drilling below 320 feet after setting 21-inch casing.

Union Drilling Co.'s No. 1, LSD 8, Section 21-18-2w5, is reported drilling below 680 feet in a new formation, apparently the upper Benton.

Central Turner Valley

In the Centrol Turner Valley area, Okalta Oils' No. 4, LSD 8, Section 1-20-3w5, has passed the bottom of the original hole and is drilling below 1,900 feet with casing at 1,770 feet.

Oil City Test

In the old Oil City Field, southwestern Alberta, Oil City Royalties' No. 1 Patrick, Section 30-1-30w4, is drilling below 1,010 feet with the producing horizon looked for around 1,100 feet. The well is close to the "Old Lineham" well which, drilled some 30 years ago, encountered light crude production, and started a boom. The discovery well had a reputed production of 300 bbls. a day of high grade crude. Numerous other companies were organized and several other tests started some of which encountered good shows of light crude. The Lineham well produced for some time, but ultimately the flow was shut off, either by paraffin or caving, and owing to marketing difficulties the field was abandoned. In the intervening 30 years several projects for testing the old field have been mooted. The present company, organized by L. R. Patrick of Calgary, is however, the first to make a definite test. It is anticipated that about three weeks drilling will reach the producing horizon encountered in the original discoverey well.

Red Coulee Field

In the Alberta end of the international Red Coulee Field, Skov Oil Co.'s No. 1 Kotop, Section 2-1-17w4, got the Sunburst sand at 2,586 feet with a show of high grade crude. Test was continued to 2,589 feet with a 15-hour bailing test yielding 8 bbls. of 38.9 gravity crude. There was very little gas, and no indication of water. The test will be deepened to the lower Vanalta sand looked for around 2,664 feet. The test is on the west flank of the structure, close to the Montana line and the most westerly well in that part of the field. Previous producing wells were further east, and production at this point will mean a considerable extension. The well was started some years ago by Kotop Oils, Ltd., of Calgary, and was later deepened by the D. A. McDonald Syndicate. This spring it was taken over by the Skov Oil Co., organized by A. Shov of High River. A lot of hard work was required to put the hole into shape for deepening from around 2,080 feet.

On the Montana end of the structure, Askalta Oils' No. 8, S half N half Section 22-37-4w, is reported spudding. Completion of this test is expected by November 15.

Drilling in the Foothills

In the forest reserve area west of Olds, Hunter Valley Oil Co.'s No. 1 McLaren, Township 31-10w5, is drilling below 2,336 feet in a black shale, and preparing to run 13⅜-inch casing.

On the Moose Mountain structure, northwest of Turner Valley, Graystone Consolidated's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, is redrilling below 1,535 feet.

On the Watson structure, north of Lundbreck, Raven Oils' No. 1, Section 20-9-2w5, is reported resuming after cementing 20-inch casing at 80 feet. Gas was struck at 75 feet accompanied by a little water.

Border Test

On the Alberta end of the international Reserve Dome structure, Rialto Oils' No. 1, LSD 4, Section 15-1-9w4, is making new hole after setting 13⅜-inch casing at 1,100 feet. Two water sands were struck, necessitating casing, and the hole is now free from water.

Athabaska Tests

In the Athabaska Field, northern Alberta, Athadome Oils' No. 2, LSD 3, Section 15-63-23w4, is reported drilling below 2,300 feet, and approximately 500 feet in the lime. The lime was encountered 100 feet higher than anticipated. Some water at 2,300 feet has been shut off. It production is not encountered in the lime, the well will be plugged back to 1,650 feet where a small production of 13 gravity crude was encountered. The company plans to drill a series of 10 wells to this horizon, but work on this project, involving an outlay of about $70,000, will not be undertaken till next spring, pending the results of the deep test under way.

Saskatchewan Test

On the Dirt Hills structure, southern Saskatchewan, Highwood-Sarcee Oils' No. 2, LSD 8, Section 23-12-24w2, is reported preparing to resume at 1,625 feet after rebuilding derrick, wrecked by a storm.

Lambton County Drilling

In the Dawn Field, Lambton County, Ontario, Union Gas Co.'s No. 67, Lot 24, Concession 9, Dawn Township, encountered a flow of around 1,250,000 feet a day in the top of the Dawn sand. The test was being deepened when struck by lightning, destroying the rig and the tools dropping in the hole. No difficulty is anticipated in recovering the tools. Union's No. 68 has been located farther west, in

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Thirteen New Producers in the Michigan Fields; Five Exceeding 1,000 Barrels a Day Each

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Oct. 9.—Michigan production for September exceeded by nearly 160,000 bbls. the previous high record of 744,000 bbls. set in October, 1932, the State's monthly total reaching 903,750 bbls., or slightly over the allowable of 30,000 bbls. a day under the new code.

New initial production exceeding 8,000 bbls. was added during the week, boosting daily potential to estimated total of 65,000 bbls. a day, or more than double the allowable. Thirteen new producers, eight in Porter Township, Midland County, and five in Vernon Township, Isabella County, comprised the week's completion record unblemished by a single dry hole. Five of the new producers exceeded 1,000 bbls. initial with two estimated at 1,400 bbls. a day.

With new production continuing upward despite a shutdown agreement delaying the completion of about 30 wells in the Porter area for 60 days, a new and more stringent schedule of proration was adopted Thursday at a meeting of the new Michigan oil regulatory board held in Saginaw. Under the new schedule all wells throughout the State are allowed a flat rate of 100 bbls. a day. Any wells with a potential of 100 to 500 bbls. will be allowed to produce 40 per cent; 500 to 1,000 bbls., 35 per cent; 1,000 to 2,000 bbls., 30 per cent, and 2,000 bbls. and upward, 25 per cent.

September production swelled the total to date during 1933 to 5,029,950 bbls., or within less than 2,000,000 bbls. of the yearly record of 6,800,000 bbls. established in 1932. At the present rate, Michigan will have produced more than 7,500,000 bbls. by December 31, 1933, setting a new annual record. September production exceeded August, 1933, by 138,200 bbls.

Increased production during the past month came principally from large new wells completed in the flush production area in Porter Township, Midland County, which alone would be able to make the entire state allowable of 30,000 bbls. a day. Of 39 completions, 26 were for oil with an aggregate initial of about 22,725 bbls. a day. One-third, or 13, were "dusters."

The largest oil producer ever struck in Michigan was completed during the month in Pure Oil Co.'s No. 1 George Whitney in Section 17, Porter Township, making an initial of more than 11,000 bbls. a day after acid treatment. Considerable extensions to the west and southwest were shown but hopes for a southeast extension of the Porter Pool were dimmed by several dry holes.

Northeast Extension

An important northeast extension of the Vernon Township, Isabella County, gas pool was indicated in several wells carried from the Michigan series to the Dundee for oil. A slight westward extension of the Dundee oil pool was indicated in one of the 13 completions of the past week.

Activity in Oceana County also increased with the completion of a new 300-bbl. well, several smaller producers and the starting of four new tests near present producers and several semiwildcat wells.

In Ogemaw County several new tests were started and eight new permits to drill were issued. A total of 64 permits during September increased the year's total to October 1 to 329, compared with 184 in 1932. This indicates a yearly record of double that of 1932, although the number of permits for September showed a 30 per cent decline from August when a month's record of 92 was established.

New Completions

The week's high record for new oil producers was set by two of the eight completions in Porter Township, each making an estimated initial of 1,400 bbls. a day in the Dundee pay. They were the Theodore Oil Co.'s No. 2 J. W. Campbell, NE SW NW Section 17-13n-1w, and Pure Oil Co.'s No. 1 A. C. Wyant, W half SW Section 16. Six other new Porter wells included Stoddard & Darke's No. 1 James Emery, NE NE NE Section 21, making 550 bbls. initial; Strange Oil & Gas Co.'s No. 5 Sam Walley, NW SW SE Section 16, making 325 bbls.; McClanahan Oil Co.'s No. 2 G. R. Hathaway, NW NE Section 17, 300 bbls.; Strange & Fortney's No. 2 J. W. Campbell, NW NW SE Section 18, 100 bbls.; Pure Oil Co.'s No. 2 James W. Peek, NW SW NW Section 16, 100 bbls., and Pure's No. 1, E. C. Crandell, SW NW NW Section 16, about 10 bbls.

Low production of McClanahan's No. 2 Hathaway was a surprise as it is one location north of No. 1 Hathaway, which had an initial of more than 5,000 bbls., made 100,000 bbls. in the first 35 days and is now nearing the 200,000-bbl. mark as the heaviest producer to date in the State.

Vernon Township

J. C. Arthur's No. 1 Beatty, SE SE NE Section 21-16n-4w, Vernon Township, Isabella County, proved a quarter mile west extension of this territory, now ranking second to the Porter Pool in drilling activity when it came in for an initial of 1,250 bbls. It made as high as 100 bbls. an hour to start.

Mellon & Pollock Oil Co.'s No. 2 J. W. Stough, NE SW SE Section 23, also made as high as 100 bbls. an hour to start, settling down to about 1,150 bbls. a day potential. This is a west offset to the Mammoth Petroleum Co.'s No. 1 Verette, which led to the recent renewal of activity in Vernon Township when it came in with an initial estimated at 10,000 bbls. a day. Wells in this area, however, have declined more rapidly than those in the Porter Pool after coming in with a greater rush of gas.

Mellon and Pollock Oil Co.'s No. 1 Icem C. Slentz, NE SW SW, Section 23, also came in with an initial of about 1,200 bbls. as the third Vernon producer of more than 1,000 bbls. a day this week. Same company's No. 3 J. W. Stough, SE SW SE, Section 23, made only 450 bbls. while W. J. Sovereign's No. 1 well on the Ann Arbor Railroad right of way NE SE SW, Section 22, made about 70 bbls. on the pump. This is the first oil well completed on the railroad leases of Mr. Sovereign who had previously brought in two gassers on the Pere Marquette right of way, one in the Broomfield Township, Isabella County, gas pool and the other in the Grant Township, Clare County Pool. The gassers both struck the pay in the Michigan series just above the Marshall formation.

Nearing Completion

Twenty other inside wells in Porter and Greendale Townships, Midland County, and Vernon Township, Isabella County, are nearing completion while three outposts, one in the East Pool (Porter Township) and two in Vernon will be finished soon.

Four wells in the Porter Pool are cased and shut down just above the Dundee as follows: Gordon Oil Co.'s No. 1 Carter, NE NW SE, Section 21; Davis Oil Co.'s No. 2 Nitzke, NW NE SE, Section 21; Strange Oil & Gas Co.'s No. 3 Walley, SE SW SE, Section 17, and Pure Oil Co.'s No. 2 Howard, Section 17.

Ten other wells in Porter Township are drilling in the Traverse: Gordon

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Central Ohio Again Leading in New Work; Three Completions in Ohio County, Ky.

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Oct. 9.—In new work under way the Central Ohio Field leads all other divisions. In the Lima Field, Wyandot County has the usual amount of new work, although but two completions were reported. In Crane Township, Wyandot County, Upper Sandusky Oil & Gas Co.'s No. 2 on the Adolph Veith farm, Section 28, produced an initial of 40 bbls. from a depth of 1,395 feet. Cobb & Ringle's test on the E. R. Kuenzli farm, Section 35, same township, was dry at 1,522-68 feet. Robert Kirk and others abandoned No. 2 on the B. C. Root farm, Section 29, same township. Straus and others have a rig for No. 1 on the Fred Moser farm, Section 7, same township. Jones & Coyle are drilling No. 6 on the Margaret Brillhardt farm, Section 28. Upper Sandusky Oil & Gas Co. is drilling Nos. 5 and 6 on the O. J. Weiker farm, Section 29, same township. W. J. Dempsey and others are drilling No. 1 on the S. B. Hooper farm, Section 6, same township, and Ferdell and others are under way on their No. 1 on the Mary Sampson farm, Section 20, same township. Keiner and others are nearing sand in No. 5 on the Louisa Brandt farm, Section 34, same township.

Simms Oil & Gas Co. is drilling on the Douglas Poe farm, Section 4, Roundhead Township, Hardin County.

In Sandusky County M. Wagner and others have abandoned their No. 1 on the Michael Wagner farm, Section 31, Sandusky Township, as a dry hole at 1,200 feet. Keiner and others are drilling No. 2 on the Charles Dumit farm, Section 24, Liberty Township, Seneca County. In Auglaize County, Grover Lynch is drilling on his own farm, Section 32, Moulton Township. A. A. Lauber is drilling on the Oliver Johnson farm, Section 34, Butler Township, Mercer County, and Francks & Quinter are drilling on the Casper Reier farm, Section 35, Granville Township, same county.

CENTRAL OHIO

Only five completions were reported from the Central Ohio Field, although there are a large number of tests getting close to the producing formations. Stark County has 30 wells drilling, 5 rigs up and 3 new locations. The week showed but two new completions. Ohio Fuel Gas Co. drilled in No. 1-5,712 on the Thurman H. Bechtel farm, Section 8, Jackson Township, which is a gas well in the Clinton at a total depth of 4,210 feet, the other being Brendel Producing Co.'s No. 1 on the James H. McDowell farm, Section 16, Plain Township, same county. In this county Brendel Producing C.o's No. 1 on V. L. Ney farm, Section 10, Plain Township, is drilling below 4,400 feet; No. 1 Lillian Shoemaker farm, Section 5, same township, 4,300 feet; No. 1 Elm Wood farm tract, Section 14, 3,900 feet; No. 1, L. & E. Fritz farm, Section 10, 3,600 feet; No. 1 Peter C. Graber farm, Section 12, 3,600 feet; and No. 2 J. S. Unger farm, Section 17, 3,000 feet. In the same township East Ohio Gas Co. has its No. 1 on the Mary Marquardt farm, drilling below 3,800 feet; No. 1 Hoover Development Co. farm, Section 9, same township, 3,500 feet; No. 1 Edward & B. Styer farm, Section 10, 3,000 feet; No. 1 Charles Pontius farm, Section 16, 2,200 feet. Cable & Campbell are below 3,000 feet in No. 1 on the Levi Stoner farm, Section 20.

In Summitt County East Ohio Gas Co. is drilling below 3,800 feet in No. 1 on the J. E. Wertz farm, Section 21, Green Township, and below 2,100 feet in No. 1 on the Mrs. F. Snider farm, Section 30, same township. Same company abandoned locations for No. 1 on the John Paul farm, Section 31, and No. 1 on the Adam Kepler farm, Section 18, same township. Same company has a fishing job at 2,025 feet in No. 3 on the John Wyles farm, Section 13, Jackson Township, Stark County.

In Licking County Ridgeway Oil Co.'s No. 2 on the Bessie F. Hoyt and others farm, Section 17, Perry Township, produced 5 bbls. initial at from 662-57 feet. Wehrle Gas Co. is drilling No. 2 on the O. A. Kreager farm, Section 10, Franklin Township, same county. Whitehill Oil Co. has a rig up for No. 7 on the J. C. Burkholder farm, Section 3, Perry Township, same county.

City Natural Gas Works has a rig up for No. 2 on the Mary Everett farm, Section 16, Berne Township, Fairfield County. Same company is drilling around 500 feet in No. 5 on the Cyrus B. Ricketts farm, same township, and below 400 feet in No. 1 on the James Keister farm, Section 8, Pleasants Township, same county.

R. E. Cain has a rig on the Clarence

Brooks farm, Lot 100, Russia Township, Lorain County.

In Muskingum County Mid-East Gas Co. has a location for No. 3 on the Ludwin Flowers farm, Section 14, Muskingum Township. In Washington Township, same county, Atha Co. made a location on the Grover C. Wilson farm, in the fourth quarter section.

In Tuscarawas County J. H. Harper is drilling on the Oscar Kohler farm, Section 22, Jefferson Township, and Frey and others are drilling on the William C. Notz farm, Section 3, Fairfield Township, same county.

In Portage County Johnson and others are shut down at 4,340 feet on the Gail King farm, Lot 39, Charlestown Township.

In Stark County, Plain Township, Fulton Oil & Gas Co. is drilling No. 1 on the Grace B. Steele farm, Section 18. East Ohio Gas Co. made a location on the Frank F. Deems farm, Section 18. Brendel Producing Co. is drilling on the C. L. Wood farm, Section 9. Cunningham Natural Gas Co. has a rig on the Catherine Donnenwirth farm, Section 22, and a rig for No. 2 on the Levi Stoner farm, Section 17, Plain Township. Same company abandoned No. 1 location on the Levi Stoner farm, same section.

In Belmont County R. W. Dunnet and others have a gas well on the Anna L. Merritt farm, Section 16, Union Township, at 1,062 feet, and a rig up for No. 1 on the Louis Gilham farm, Section 15, same township.

In Guernsey County, R. W. Dunn and others' test on the Orland Toland farm, Section 9, Londonderry Township, is reported dry at 1,599 feet. Wilber Keith made a location on the Ralph Foraker farm in Wills Township.

INDIANA

Four completions were reported from the Indiana Field, the best being Big Four Oil & Gas Co.'s No. 2 well, 200 feet from the north line and 1,000 feet from the west line of the Nora Hope farm, NW Section 19, Washington Township, Gibson County, which produced an initial of 120 bbls. at from 1,257-65 feet. Gib Van Oil Co.'s No. 6 well, 500 feet from the south line and 518 feet from the west line of the Agnes Haskins farm, SE Section 18, same township, produced 10 bbls. at 1,286-88 feet. In Columbia Township, same county, Knox Engineering Corp. is drilling near pay sand in No. 3 on the G. C. Sampley farm, SW Section 23, and nearing completion of No. 2 on the Russell Farmer farm, SE Section 22, same township.

In Pike County H. H. Risher's test in the northeast corner of the Ada Hale farm, Section 30, Washington Township, is a gas well around 750,000 feet from 18 feet of sand at 1,095-1,103 feet. Harry N. Bell's No. 3 on the J. and C. Shea farm, SW Section 17, same township, in the southwest corner of the lease, produced an initial gas volume of better than 3,750,000 feet from 1,032-40 feet. Harry N. Bell is drilling No. 1 on another J. and C. Shea farm, in Section 19, same township. Charles C. Talliaferro, Jr., is drilling on the Anna Bradfield farm, Section 7, same township, and A. Vern Burden is drilling No. 4 on the William Smith farm, SW Section 17, same township.

In Daviess County, L. G. Gee and others abandoned No. 1 on the Edith N. White farm, Section 28, Veale Township.

ILLINOIS

No completions were reported from the Illinois Field. There were six old wells abandoned: Tide Water Oil Co.'s No. 13 on the J. F. Snyder No. 2 farm, NE Section 25, Dennison Township, Lawrence County, and in Lawrence Township, same county, Ohio Oil Co. abandoned Nos. 1 and 3 on the Roy Summer farm, NW Section 2, and Nos. 1, 2 and 3 on the Hettie Tanguary farm, in the same quarter section.

KENTUCKY

Three completions were reported from the Ohio County area of Kentucky, all three being producers. J. E. Hare and others' No. 1 well, 1,000 feet from the north line and 150 feet from the east line of the J. A. Morgan farm, in the Adaburg Pool, produced an initial of 30 bbls. from the Jett sand. D. T. Bolling's No. 6 well, 1,200 feet from the south line and 200 feet from the west line of the Frank Hanner 140 acres, in the Deanfield Pool, produced 20 bbls. initial, and S. R. Nigh and others' No. 20 well, 2,200 feet from the south line and 1,000 feet from the west line of the A. P. Kelley 340-acre farm, in the Kelley Pool, produced 10 bbls. initial from the Barlow sand.

In the Bowling Green Field, Warren County, Kentucky, McGinley & Howe's No. 1 on the Neal Crawford 187 acres, in the Hardcastle Pool, was a dry hole at a depth of 572 feet.

In the Scottsville Field of Allen County, H. H. Coughill Oil Co.'s No. 53 on the E. H. Woods farm, is a gas well at 282 feet, and No. 54, same farm, is drilling. H. H. Bastrus is drilling on the Cris Jones farm, also in the Scottsville Pool.

Another Large Producer in the Lost Run Pool; West Virginia's Narrow Injun Sand Streak

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Oct. 9.—The refinery demand is still in excess of production. In the lower districts, the desired 125 per cent of the November, 1931, output was not attained, production figures remaining below 100 per cent. From present field indications, production totals should improve as there is considerable new work in progress.

Another large producer was completed in Lost Run Pool, Clay district, Ritchie County, West Virginia, where Richards Farm Oil Co. completed its No. 3 on the Frank R. Ball farm in the Injun sand, and as soon as the sand was tapped the flow began. It is flowing at the rate of 40 bbls. an hour and produced in excess of 900 bbls. the first day. This well is on the waters of Lost Run, about 150 feet southeast of No. 2. The depth is around 2,000 feet.

Richards Farm Oil Co.'s No. 2 on the Corlie Ball farm, mapped as the Michael Moran farm, is flowing at the rate of about 50 bbls. an hour. The Smith & Hendershot test on the Charles H. Frederick farm is now making about 300 bbls. a day. The Elder & Loudin second test on the S. E. Satterfield farm is holding up around 300 bbls. a day. Boehm & Strickler Oil Co.'s No. 4 on the Boehm & Strickler farm is producing about 800 bbls. a day; No. 2, same farm, about 200 bbls. a day, and No. 3 has again increased to over 300 bbls. a day.

This is the most interesting development in recent years in the lower Eastern fields. Production so far has been confined to a fairly narrow Injun sand streak along which wells have been staggered in a northeast direction from the original test on the Edgar Hinton farm. A new test north of present production is starting with the completion of a rig by the Boehm & Strickler Oil Co. on the Biddie Fox farm, the southeast corner being the Charles H. Frederick farm. F. R. Roberts and others are ready for a test on the Sada McGinnis farm due north of the Frederick farm. Richards Farm Oil Co. is starting drilling No. 4 on the Frank R. Ball farm. Richardson and others have rigged up for a test on the Ruth Andrews farm.

Completions

Completions were fair in the lower Eastern fields during the week. Eleven wells were completed and there were three additional dry holes. Five were producers with an initial production of 1,015 bbls. and seven were gas wells. There was one fair test in Southeast Ohio.

WEST VIRGINIA

All late wells in West Virginia were completed as gassers. Among the reconditioning work in progress, Hope Construction & Refining Co. treated its No. 1 on the Elias Poole farm with acid and increased production from 1½ bbls. a day to 16 bbls. a day. This well is in Sherman district, Calhoun County.

In Cabell County, Petry & Borders completed a test on the Shelby Johnson lot in Guyandotte district in the shale at 2,830 feet. It is a gas well gauging at about 300,000 feet a day.

In Calhoun County there were two new gas wells and one dry hole. In Lee district Lowther & Shuman completed a test on the Rufus and Maud Mace farm in the Injun sand at 2,207 feet, showing for 212,000 feet a day natural. In Sherman district F. F. McIntosh completed a test on the O. S. Bennett farm in the Injun sand at 1,807 feet. It is a light gas well, natural. In the same district Lyle S. Ayers and others drilled a test on the Kate Garrison farm through the Injun sand to a depth of 2,286 feet. That formation was dry and the hole is being abandoned.

In Roane County, on Johns Run of Little Creek in Spencer district, Hildreth Gas Co. completed a second test on the Roy Hildreth farm in the Injun sand and to a depth of 2,271 feet. It gauged 228,000 feet a day, natural, which after shot was increased to 500,000 feet. There is a showing for about one-half barrel of oil a day, but it was not shot in that pay. In the same district, on the waters of Big Run of West Fork, Bartlett & Mace completed a test on the Webb and Van Mace farm. It is a gas well gauging at about 100,000 feet a day natural from the Injun sand at a depth of 2,200 feet. There was also a small showing of oil.

In Wetzel County, Manufacturers Light & Gas Co. reached 3,004 feet in drilling deeper its No. 3,300 on the W. P. Hubbard farm in Church district. There is a show of oil in the Fifth sand which is being tested. Top of the sand was struck at 2,984 feet with the oil at 2,986 feet.

Drilling in West Virginia

Several new tests are starting in Ritchie County. In Murphy district Ira Roberts and others have made a location on the W. T. Baker farm. In this district F. S. Deem and others have made a location on the Mary and John Border farm, and Wilson & Baker one for No. 24 on the Ritchie Mines. In Union district Diamond Supply Co. has a location on the Harrison Wright farm. In Grant district, Anderson & Smith have started drilling on the Thomas Maloney heirs farm, and J. Swingle and others have reached 1,500 feet in a second test on the George Morris farm. In this district Leeton & Flanigan have rigged up on the Roy Delaney farm, and E. Dilley and others have a rig standing on the A. E. Dye farm. In Murphy district, W. H. Bickel is down 1,375 feet on the Jennings Fox farm on the waters of Leatherneck Creek about 2½ miles southeast of Smithville. In this district A. H. Jackson and others are building a rig for a second test on the J. W. Heffner farm.

In Roane County there are two new locations. George E. Smith has made a location on the L. A. Short farm in Spencer district, and W. B. Heeter has a location on the Maude Knopp and others lease in Curtis district. In Smithfield district Ohio Valley Gas Corp. has rigged up on the Josephine Young farm. In Spencer district D. S. Fisher and others have a rig standing for a second test on the Stella V. Knotts farm.

In Monongalia County Chartiers Oil Co. is down 2,950 feet on the Thomas Williams heirs farm in Clay district. In Battelle district Manufacturers Light & Heat Co. has reached 3,350 feet in drilling deeper its No. 1 on the Henry Yost farm.

In Wetzel County Ray Hennen and others are drilling No. 4 on the Jesse Parson farm in Proctor district and have reached 2,370 feet. They have a rig standing on the Jessie Parrish farm, same district. In Marshall County, Guy B. and A. G. Patterson are rigged up to drill a second test on the C. and A. B. Williams farm in Liberty district.

Boone County

In Boone County Cambridge Gas Co. is spudding in No. 2 on the Roman Pickens farm in Scott district. In Washington district same company is spudding in No. 6 on the C. C. Lewis heirs farm. Pond Fork Oil & Gas Co. is down 1,425 feet in No. 15 on the Cole & Crane lease, same district. In Sherman district Pure Oil Co. has reached 2,898 feet on the A. M. Prichard farm and 2,357 feet and cementing in No. 62 on the Federal Coal Co. tract, both in Sherman district.

In Cabell County H. H. Baker Gas Co. is rigging up on the J. M. Lewis farm, Guyandotte district. In this district J. W. Ramsey & Son are drilling at 2,000 feet on the W. E. Duncan farm; Martin Gas Co. is down 1,125 feet on the Humphrey farm, and Guyan Valley Gas Co. has reached 2,350 feet on the Big Four Realty Co. tract. In McComas district, West Virginia Gas Corp. is drilling by the tools lodged in its test on the H. L. Day farm.

In Calhoun County a new test is starting. Fisher & Smith have part of the material on the ground on the C. A. and M. S. Snyder farm in Center district. In this district M. V. Burt and others have completed a rig on the Beeman Wright farm, and W. A. Bickerstaff has reached 1,800 feet in a second test on the Edward Gainer farm. In Sheridan district, Cain & Rothwell have part of the material on the ground for a second test on the Lee Roy Jones farm. Chemical Oil Co. is down 1,980 feet in a second test on the Margaret J. Webb farm, and L. B. Carroll is down 1,520 feet in No. 13 on his own property. In Lee district Litt Oil & Gas Co. is rigging up to drill on the J. S. Wade farm.

SOUTHEAST OHIO

Three producers, two gas wells, and one dry hole were reported from Southeast Ohio during the week. One producer was a fair test. In Licking County J. A. Upham, operating as the Upham Gas Co., completed a test on the Virgil Smith farm in Section 14, Fallsbury Township. It was drilled in the Clinton sand at a depth of 3,034 feet and is making about 50 bbls. a day, after shot. In Perry Township Ridgeway and others completed a second test on the Bessie Hoyt farm, Section 17, in the Berea sand at a depth of 1,300 feet. It will make about a 2-bbl. pumper.

In Meigs County, Meigs Development Co. drilled No. 3 on the Gertrude Chapman farm in the central part of Section 5, Rutland Township. It is a gas well in the Maxon sand at 1,070 feet and is showing for about 350,000 feet a day.

In Noble County D. J. Peaker and others drilled a second test on the Mary J. Webber and Allie Cain lease in the SE Section 6, Enoch Township. It went through the Buell Run sand to a depth

of 305 feet and there was no showing of oil or gas.

In Washington County Otto Heldman and others completed a second test on the McDonald Greathouse farm in Section 1, Liberty Township. It was drilled in the Berea grit at 1,992 feet and is showing for about 94,000 feet of gas a day from that formation. In the Big Injun sand, at 1,555 feet, there was a showing for about 1 bbl. of oil a day, natural. The gas was at 1,960 feet. In Lawrence Township John B. Braden estate and others completed a second test on the George P. Miller farm in Section 28. It was completed in the First Cow Run sand at 520 feet and is making about 1 bbl. a day after shot. The shot did not improve the natural production. It is about 300 feet northwest of No. 1, same farm.

In Licking County Whitehill Oil Co. is moving a machine for No. 7 on the J. C. Burkholder farm, Section 3, Perry Township. In Franklin Township Wehrle Co. is drilling a second test on the O. E. Kreager farm, Section 10.

SOUTHWEST PENNSYLVANIA

In Southwest Pennsylvania one small producer was completed. In Richland Township, Allegheny County, E. A. Bream & Co. completed No. 4 on the John Poff farm in the 100-foot sand at 1,850 feet. It will make about a 2-bbl. pumper and is being cleaned out. The same company has a rig building for No. 5, same farm.

In Beaver County Frank Crooks and others are drilling No. 6 on the Mrs. Sarah Dawson farm in Ohio Township. It is down 700 feet.

In Greene County Carnegie Natural Gas Co. drilled its No. 1 on the Leasure Cowell farm in Perry Township deeper to the Fifth sand at 3,028 feet. It proved to be a dry hole. In Dunkard Township Convex Glass Co. is down 2,740 feet on the Samuel Morse farm and will test the Speechley sand.

In Washington County Steele & Co. has a location on the R. C. Brown farm in Cecil Township. In Hanover Township Carnegie Natural Gas Co. is drilling a second test on the Pittsburgh Coal Co. property and has reached 850 feet. In Amwell Township Manufacturers Light & Heat Co. is down 1,725 feet on the Maggie I. Craft farm. Wise Oil & Gas Co. shut down building its rig on the E. E. Roach farm of 10 acrs, same township. In East Findlay Township Hallam & Lewis and others have reachd 2,365 feet on the H. D. Ely farm.

In Greene Couny Richhill Oil & Gas Co. is rigging up on the F. W. Baldwin farm about 4,000 feet northwest of the crossroads at Ryerson Station. Myers, Hoskinson and others are ready to start a test on the John N. Clutter farm about 5,700 feet northeast of the crossroads at Simpson's store.

Michigan Fields

(Continued from Page 73)

Oil Co.'s No. 1 Deibel, Section 18; same company's No. 2 Good, Section 17; George Hanners' No. 1 M. E. Church, Section 17; Pure Oil Co.'s No. 7 Naramore, Section 15, and No. 2 Wyant, Section 16; Stork Oil Co.'s No. 3 Hill, Charles Smith's No. 2 Buschre, Sun Oil Co.'s Nos. 2 and 3 Miller and Fred Turner's No. 1 Hock.

Two tests in the old Greendale Pool also are nearing completion: Michigan Producers & Refiners' No. 1 Bond heirs in Section 14 and Theodore Oil Co.'s No. 3 Steed in Section 3.

Four inside Vernon Township wells drilling at about 3,000 feet deep are Mellon and Pollock's No. 2 House, Section 26 and No. 4 Stough, Section 23; J. V. Wicklund's No. 1 Marceilles, Section 23 and Mammoth Petroleum Co.'s No. 3 Verette, Section 23.

Atha-Columbia Co.'s No. 1 Van Connent, SW SW SE, Section 25, a considerable southeast extension of the Vernon Township Pool, has set casing and is drilling at more than 3,700 feet. Templemayr and Tope's No. 1 Reakes, SE SW NW, Section 15, north of the proved structure, is nearing the casing point above the Dundee. J. Mark Harvey's No. 1 Messenger, NE NE SE, Section 36, Porter Township, an East Pool outpost, is in the Traverse formation at about 2,900 feet.

Wildcat Tests

H. C. Nelson's No. 1 Spittler, Section 11, Austin Township, Mecosta County, is cased and ready to drill into the Michigan gas sands early next week as a prospective new gasser in the Central Michigan Pool.

One new well is drilling in Ogemaw County where a considerable play is about to start, while two others are ready to spud in.

A. R. Nelson's No. 1 Nelson, NE NE SE, Section 33-22n-2e, West Branch Township, is drilling with C. A. Perry's No. 1 Wobig heirs, SW SW NE, Section 6, Mills Township, and George Elliott's No. 1 Mier, NW SW SW, Section 22, West Branch Township, about ready to go. Alvin Weber is building rig on his No. 2 Wilcox, NW NE NE, Section 34, West Branch Township, while W. J. Sovereign is moving in for his No. 1 Griffin, NW NW SW, Section 29, West Branch.

Theodore Oil Co. has closed a deal to drill two tests on permits originally issued to Edward Christman for No. 1 Ogemaw Country Club, SE SW SE, Section 20, West Branch, and No. 1 Ogemaw Coal Co., Section 36, Ogemaw Township. A new permit also has been taken out for W. F. Brown's No. 1 Riopelle, Section 10, Mills Township.

Three wildcats are drilling in Denver Township, Isabella County.

New Permits

Six new permits including two for new wells in Vernon Township, Isabella County, and four on wildcat locations in central Michigan, were issued this week by the oil and gas division of the conservation department. The two new Vernon locations are Tri Oil Co.'s Nos. 3 and 4 Icem C. Slentz, the former located NE NE SE, Section 22-16n-4w, and the latter NE NW SE, Section 22. E. Brown Development Co. took out a permit for No. 1 William Herdell, SW SW SW, Section 15-13n-13e, Argyle Township, Sanilac County, a new territory. William J. Wilson, trustee, received a permit for No. 1 Beach, NE NE SW, Section 17-12n-5w, Richland Township, Montcalm County.

Another wildcat in the Mount Pleasant territory will be drilled by Wittmer Co., Inc., on the John McReavy lease, E half SW, Section 12-15n-4w, Isabella Township, Isabella County. S. S. Bankle's No. 1 R. Farnsworth, NE NE NE, Section 15-13n-2w, Jasper Township, Midland County, is another wildcat location near Mount Pleasant.

Kansas Fields

(Continued from Page 65)

Harper and others' No. 5 Figge, C E half SE SW Section 28-23-14, Woodson County, was treated with 1,000 gallons of acid in Mississippi lime at 1,639-49 feet. It pumped 82 bbls. in 24 hours.

Theta Oil Co.'s No. 7 Shaffer, SE NW NW SE Section 31-23-14, Woodson County, pumped 8 bbls. in 24 hours from sand at 1,560-74 feet, and may be shot.

Skelly Oil Co. and Tide Water Oil Co.'s No. 24 Wick, SE NW NW Section 27-22-11, is a 30-bbl. pumper after shots at 1,947-77 feet and 1,914-28 feet.

New work in Greenwood County included York State Oil & Gas Co.'s No. 14 Westcott, NE SE NW NW Section 33-22-11, and No. 15 Westcott, C W half NW Section 33-22-11, both spudding; Hubbard, Spencer and others' No. 2 Thrall, NW NE NE Section 17-24-12, a location; Aikman and others' No. 1-A Gilroy, NE cor. NW Section 24-25-12, a wildcat, machine in; Wolf Creek Oil & Gas Co.'s No. 2 Kaub, CNL SE NE Section 15-25-13, rigging up machine.

—Courtesy Pure Oil News

Dr. Wm. Bowie Now Head of World Geodetic Union

WASHINGTON, Oct. 7.—Dr. William Bowie, chief of the division of geodesy of the Coast and Geodetic Survey, has received word from Lisbon, Portugal,

DR. WILLIAM BOWIE

that he had been named president of the International Geodetic and Geophysical Union for a term of six years. Doctor Bowie, a native of Annapolis, Md., is the first American to head the union, formed just after the war.

JOHN R. ROBERTS DIES

LOS ANGELES, Calif., Oct. 7.—Many friends in the oil industry will regret the passing of John R. Roberts, 45, petroleum valuation engineer with the U. S. Bureau of Internal Revenue for the past eight years in San Francisco. Mr. Roberts has been a member of the bureau since 1922 when he joined the income tax unit in Washington, D. C. He succumbed to a heart attack at his desk. He was identified with Mid-Continent oil companies for a number of years, after completing work at Wisconsin University, as oil scout and geologist.

OKLAHOMA-KANSAS
Pipe Line Statement for July

RUNS

Company—	Barrels Month	Barrels Dly. av.
Gulf P. L. Co.	1,645,458	53,079
Texas P. L. Co.	622,115	20,068
Empire P. L. Co.	2,671,043	86,163
Magnolia P. L. Co.	1,542,137	49,746
Cosden P. L. Co.	1,020,474	32,919
Stanolind P. L. Co.	4,913,500	158,500
Oklahoma P. L. Co.	2,681,952	86,515
Other lines	7,492,235	241,685
Total July	22,588,914	728,675
Total June	17,550,120	585,004
Difference	5,038,594	143,671

SHIPMENTS

Gulf P. L. Co.	1,443,777	46,573
Texas P. L. Co.	861,170	27,780
Empire P. L. Co.	2,348,098	75,745
Magnolia P. L. Co.	1,384,274	44,654
Cosden P. L. Co.	925,281	29,848
Stanolind P. L. Co.	3,906,000	126,000
Oklahoma P. L. Co.	2,624,614	84,665
Other lines	5,549,000	179,000
Total July	19,042,214	614,265
Total June	18,313,500	610,450
Difference	728,714	3,815

STOCKS

Sinclair Prairie Oil Mktng. Co.*	30,232,000
Gulf P. L. and Gypsy Oil Co.	7,775,982
Texas Co.	3,733,994
Empire P. L. Co.	5,258,495
Mid-Continent Pet. Corp.	2,444,260
Stanolind Crude Oil Pur. Co.*	13,224,000
Magnolia Pet. Co.	7,300,535
Oklahoma P. L. Co.	1,174,254
Carter Oil Co.	2,391,658
Other lines	19,311,000
Total July	92,846,178
Total June	89,245,796
Difference	3,600,382

*Estimated. Stanolind Pipe Line Co. shipments include Texas crude oil.

Wildcat Operations in Southwest Texas

(Continued from Page 67)

BEXAR COUNTY

C. I. Albertson's No. 2 C. Hoke estate, 675 ft. from E line, 250 ft. N of Medina River in Jose Maria Barrera Sur. ....T.D. 350 ft. in shale; standing.
F. J. Von Deiden et al's No. 1 Frank Webber, 150 acres in J. Montes No. 6 ....T.D. 100 ft.; set 8-in. csg.
Dingman's No. 1 Cassin, 175 ft. from N, 120 ft. from W line of 1,250-ac. tract in Rodriquez Sur. ....T.D. 1,506 ft.; abd.
Austin Hull's No. 1 Classen, 265 ft. from W line, 2,500 ft. from S line of tract, 12 miles N of San Antonio.. T.D. 1,810 ft.; standing.
LaSalle Oil Co.'s No. 1 City Sewage farm, 150 ft. S of Rilling Road, 450 ft. W of NE cor. of tract in D. Bustillos Sur. ....T.D. 75 ft.; standing.
C. J. LeCompte's No. 4 R. Diaz, 324 ft. NE of No. 1....T.D. 320 ft.; S.D.
Motes-Campbell's No. 1 Pruitt, 550 ft. NE of Trussells' No. 1 Pruitt, 54 varas from E line of tract in Samuel McCullough Sur. ....T.D. 1,065 ft.; T.A.
Motes-Campbell's No. 1 Stumberg, 990 ft. from N line, 450 ft. from W line of F. Rolen Sur. No. 48 ....T.D. 1,135 ft.; standing.
Motes-Campbell's No. 2 Stumberg, 450 ft. from N line, 450 ft. from W line of S. Stumberg 140-ac. tract in F. Rolen Sur. No. 48 ....T.D. 597 ft.; drlg.
George L. O'Neill's No. 1 Neimann in Juan Montez Sur. No. 6 ....T.D. 530 ft.; drlg.
Fred Perrenot's No. 1 Ruiz, SE cor. of 82-ac. tract in F. Rowland (Rolen) Sur. No. 48 ....T.D. 710 ft.; drlg. shale.
Fred A. Perrenot's No. 1 Russell, 750 varas from NE line, 54 varas from NW line of 500-ac. tract in Rodriques Sur. ....T.D. 1,315 ft.; standing.
H. A. Pagenkopf's No. 1 G. A. Goeth, 500 ft. from SE line, 600 ft. from SW line which is San Antonio River, Juan Montes Sur. ....T.D. 2,010 ft.; resetting csg.
Perry, Woodie & Boler's No. 1 Milburn, 450 ft. from N line, 150 ft. from E line of 103-ac. tract in S. C. I. Perez Sur., 15 miles SW from San Antonio ....T.D. 975 ft.; drlg. shale.
Earl A. Post's No. 3 J. F. and F. X. Bilhartz, 150 ft. from N and E lines of S 200 acres of 355-ac. tract in F. Boles Sur. ....Moving in rig.
Roe & Day's No. 2 City Nat'l. Bank, 150 ft. from N and W lines of tract in I. Perez Sur. No. 15 ....T.D. 350 ft.; standing.
C. A. Smith's No. 1 Henry Lamb, 750 ft. from N and E lines of Lamb farm, in de la Garza grant ....T.D. 620 ft.; drlg.
F. E. Tegler's No. 1 Brackenridge, 678 ft. from S line, 2,284 ft. from W line of tract in Maria Gertrudis de Alanis Sur. ....T.D. 1,315 ft.; drlg. chalk.

BLANCO COUNTY

Blanco Development Co.'s (McGee) No. 1 A. J. Dittmar, 1,320 ft. from S line, 150 ft. from W line of George Evans Sur. No. 58, 4 miles NW of Johnson City ....T.D. 720 ft.; set 8-in. csg.
Isham et al's No. 1 Lester ranch, 200 varas from N and E lines of Antonio Bandrand Sur., 8 miles NE from Johnson City ....T.D. 405 ft.; S.D.

CALDWELL COUNTY

Judge R. L. Batts' No. 1 Roebuck, 2,400 ft. from NE line, 1,200 ft. from SE line of tract in Arthur Swift Sur. ....T.D. 2,268 ft.; S.D.
E. L. Hope and Joe Cole's No. 1 Mike August, 150 ft. from NE line, 165 ft. from NW line of tract ....T.D. 1,961 ft.; S.D.

DE WITT COUNTY

C. B. Bunte, Inc.'s No. 1 Emil Buckhorn, SE cor. of 120-ac. tract in Andrew Lockhart Sur., 2 miles SW from Lindeneau ....T.D. 1,918 ft.; drlg.
L. G. Wade's No. 1 fee, 6 mi. S from Yoakum, 620 ft. from NW line, 160 ft. from SW line of 35-ac. tract in Lavina Dunbar Sur. ....T.D. 2,257 ft.; S.D.

DUVAL COUNTY

Al Buchanan et al's No. 1 Duval County Ranch Co., 1,650 ft. from E line, 990 ft. from S line of S½ of N½ of Sur. No. 206 ....T.D. 700 ft.; drlg.
DeSoto Oil Co.'s No. 2 Wood-Welder, 660 ft. E of No. 1 (950 ft. from N line, 2,640 ft. from W line of Sur. No. 211 ....T.D. 2,502 ft.; abd.
Eaton et al's No. 1 Herbst, 1,650 ft. from E line, 330 ft. from S line in S.A.&M.G. Sur. No 71 ....Standing.
O. W. Killam's No. 2 Wood-Welder, 3,658 ft. from S line, 900 ft. from W line of Sur. No. 102 ....Rigging up.
S. S. & H. Oil Co.'s No. 1 Hunter, 330 ft. W of CEL of J. Poitevant Sur. No. 515 ....T.D. 2,650 ft.; drlg.
W. A. Smith's No. 1 Holzapfel, west central part of lease in 900 ft. W of NE cor. of Sur. 344 and 150 ft. from N line of Sur. No. 42 ....T.D. 398 ft.; standing waiting on water.
Almer Stewart's No. 1 Parr, 350 ft. from E line, 200 ft. from S line of 500-ac. tract in Poitevent Sur. No. 185 ....T.D. 2,275 ft.; drlg.
Whitting's No. 1 Duval County Ranch Co., 1,611 ft. from S line, 2,143 ft. from W line of Blk. 21, of Sur. No. 196 ....T.D. 1,050 ft.; drlg.

EDWARDS COUNTY

Love and Evans' No. 1 Steve Brown, 660 ft. from N and E lines of Sec. 66, G.W.T.&P.R.R. Sur., 15 miles W of Rock Springs ....T.D. 1,750 ft.; drlg.

FRIO COUNTY

Amerada Pet. Corp.'s No. 1 Frank Doering, 34 ft. from W line, 1,700 ft. from S line of Tract No. 7 in Maria Louisa Carranza Sur. No. 302 ....T.D. 5,470 ft.; topped chalk.
J. E. Greenlee's No. 3 Burns, 150 ft. from W line, 1,800 ft. from S line of SE of 160-ac. tract, Castro Sur. No. 123 ....T.D. 2,365 ft.; standing.

GILLESPIE COUNTY

Powers et al's (Nixon-Dore) No. 1 Andrew Lindig, 18 mi. E of Fredericksburg ....T.D. 1,194 ft.; fishing.

GUADALUPE COUNTY

A. F. Barnhill's No. 3 F. A. Phillman, 1,300 ft. from N line, 152 ft. from E line of lease in L. Bollinger Sur. ....Moving in rig.
Clint Lanier's No. 1 L. D. Hill, 450 ft. from NW line, 1,450 ft. from NE line of George Allen Sur. ....T.D. 610 ft.; S.D.
L. E. Trout's No. 1 Mrs. M. McKee, 650 ft. from W and 150 ft. from N line of 239-ac. tract in Green Dewitt Sur., 4 miles SW from Darst Creek ....Moving in rig.
W. J. Walton and H. H. Weinert's No. 1 Sorrell, L.-350 ft. from S line, 300 ft. from E line of Sorrell tract in Manuel Ximines Sur. ....To spud in.

HIDALGO COUNTY

Carl & Johnston's No. 1 Doughty, 167 ft. from S and E lines of Lot 11, Blk. 5 of Subd. of Indios Ranch Sur. in N. Hidalgo ....T.D. 3,040 ft.; S.D.
Chancellor & Hall's No. 1 Garcia Land & Cattle Co., 150 ft. from W line of Porcion 42 and 150 ft. N of old Military Highway ....T.D. 3,187 ft.; standing.
Maxwell & Young's No. 1 King, 175 ft. from N and E lines of Lot 5, Blk. 16, Alamo tract ....T.D. 875 ft.; drlg.

JIM HOGG COUNTY

D. C. DeWitt's No. 1 A. G. Lopez, 3,475 ft. from W line, 425 ft. from N line of Sur. No. 106 ....T.D. 2,490 ft.; drlg.
Brooklyn Oil Co.'s No. 1 De La Garza, 660 ft. from N and W lines of Blk. 87 of Pippins Subd. of Randado Grant Sur. ....T.D. 255 ft.; standing.

KENDALL COUNTY

E. W. Martin's No. 1 Houston, in F. Wright Sur ....T.D. 1,987 ft.; drlg. shale.

KERR COUNTY

J. E. Andersen's No. 1 J. D. Witt, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 1,923, in Hamilton Sur., 4 miles S of Center Point ....T.D. 1,385 ft.; standing in shale and sand.
Evans & Gant's No. 1 Love, 660 ft. S of S line of Sur. 1,597, 1,320 ft. from W line of Sur. 1,594 ....T.D. 4,060 ft.; rigging up to deepen.
Van Duyn & Moore's No. 1 Nowlin, 2,000 ft. from E line, 2,300 ft. from N line of Jas. R. Bettner Sur. No. 99 ....T.D. 1,012 ft.; drlg. lime.

LA SALLE COUNTY

Pacific Gulf Oils and C. B. Bunte's No. 1 Lastinger, C of NE of Sec. 507 ....T.D. 2,256 ft.; reached contract depth at 2,250 ft.; S.D.
W. H. Wallace's No. 1 H. C. Yeager, 150 ft. from S and E lines of Sur. No. 95 ....T.D. 1,650 ft.; drlg.

LIVE OAK COUNTY

Coquat, O'Neill & Phillips' No. 3 Sanger, 2,930 ft. from SW line, 330 ft. from SE line of Sur. No. 350....T.D. 3,600 ft.; dry and abd.
J. H. Durbin's No. 2 Marbach, 1,000 ft. from S line, 3,200 ft. from W line of S. Haya Sur. ....T.D. 904 ft.; moving rig back; will try to make well.
Holland Oil Co.'s No. 1 T. J. Lynn, 175 varas from E line, 54 varas from N line of 272-ac. tract in Sur. No. 171 ....T.D. 2,663 ft.; cored sand; had slight show oil at 2,631-38 ft.
M. P. Howard's No. 1 Alexander, 2,700 ft. from N line, 150 ft. from E line of 500-ac. tract, 3 miles NE of Calliham ....T.D. 1,223 ft.; swbng.

McMULLEN COUNTY

Nixon & Foster's (C. B. Bunte) No. 1 Lowe, 1,320 ft. from NE line, 1,320 ft. from NW line, Sec. 132, A. Starr Sur. ....Laying water line and bldg. pits.
L. W. Stieren's No. 1 Hortono, 1,000 ft. from N, 2,000 ft. from E line of Sur. on 3,089-ac. tract in J. M. Jean Sur. ....T.D. 620 ft.; drlg.
Paul C. Teas' No. 3 Hagist, 330 ft. from N and W lines of Sec. 19 ....To start drlg. about Oct. 18.
Paul C. Teas' No. 1 Hagist, 330 ft. from N and E lines of Sec. 181, 10 miles N from Government Wells....T.D. 250 ft.; drlg.
Paul C. Teas' No. 2 Hagist, 330 ft. from N and W lines of Sec. 25, Blk. 5, of H.&T.C.R.R. Sur. ....Spudded in.
Whisenant & Trenchard's No. 1 Martin, 1,650 ft. to E line, 2,310 ft. to S line of Sur. No. 108 ....T.D. 2,507 ft.; abd.

MILAM COUNTY

Ed Clark et al's No. 1 Thomas Graves, 250 ft. from SW and NW lines of Jackson Hall Sur. ....T.D. 890 ft.; shut down in shale.

NUECES COUNTY

Banquette Oil Co.'s No. 1 T. C. Ingram, 330 ft. from N and W lines of 80-ac. tract, Blk. 6, Sec. 7, of S. R. Peters Sur. ....To set surface csg.
S. F. Hurlbut and Southwest Oil Co.'s No. 1 Poenisbch, center Blk. 2, Sec. 32, Flowerbluff & Encinal farm, 8 miles S from Corpus Christi ....T.D. 525 ft.; W.O.C.
Texon Royalty Co.'s No. 1 E. McCoy, 330 ft. from W line, 3,630 ft. from S line, Sec. 3, of Palo Alto Sur., 6 miles SE from Agua Dulce ....T.D. 1,750 ft.; repairing boiler.

SAN PATRICIO COUNTY

George W. Scruggs' No. 1 Collins, 1,040 ft. from NE line, 700 ft. from SE line of Blk. 36, E. J. McGloin Sur. ....T.D. 2,756 ft; changing to heavier rig.

STARR COUNTY

B.&B. Oil Co.'s No. 1 Crown Brick & Tile Co., 1,800 ft. S of State Highway No. 4 and 580 ft. from W line of Porcion 97, near La Puerta ....T.D. 4,560 ft; fishing.
Great Plains Oil Co.'s No. 1 Sanchez, 660 ft. from W line, 330 ft. from S line of SE NW of Sur. No. 344 ..T.D. 2,350 ft.; standing.
Goodwin & Yantis' No. 1 Kelsey Bass, 150 ft. from S and E lines of Blk. 8, Coast O. & G. Subd. of Secs. 2 and 3, Porcions 86-87 ....T.D. 1,040 ft.; standing.
Goodwin & Yantis' No. 1 Seabury, 150 ft. from S and W lines of Sec. 107, Share No. 1, Porcion No. 107....T.D. 2,095 ft.; no report.
Goodwin and Yantis' No. 2 Walker, 3,000 ft. from S line, 2,000 ft. from W line of Sur. No. 767 ....Rigging up.
E. D. Harrison's No. 1 Garcia, 4,018 ft. from S line, 330 ft. from W line of Share 215, Porcion 90, jurisdiction Camargo ....T.D. 2,360 ft.; drlg.
Myers, Sullivan & Jenkins' No. 1 Starr County Cattle Co., 330 ft. from N line, 330 ft. from W line, Blk. 62, Porcion 89, Share 60 ....T.D. 510 ft.; drlg.
R. D. Perkins & Hoffman's No. 1 E. A. Peffler, 3,090 ft. from W line, 2,480 ft. from S line of Sur. 933..T.D. 80 ft.; standing.

TRAVIS COUNTY

Franklin et al's No. 1-A Reimers, 1,200 ft. from SE line, 1,600 ft. from most southerly SW line of Sur. No. 25 ....T.D. 500 ft.; standing.
Watson, Johnson & Brady's No. 2 Brady ....T.D. 1,345 ft.; standing.
Weaver & Osborn's No. 1 Will Reinhardt, 200 ft. from NW line, 1,200 ft from NE line of Will Reinhardt 100-ac. tract in William Lewis, Jr., Sur. 2.... T.D. 248 ft.; standing.

UVALDE COUNTY

Evans & Thompson's No. 1 Farris, 400 ft. from S and W lines of 535-ac. tract near center of John J. Hammond Sur. ....T.D. 460 ft.; no report.
John Roberts' No. 3 Kincaid ....T.D. 385 ft.; standing.
O. A. Payte, No. 1 H. M. Waldrip, 160 ft. from S and W lines of G. Traute Sur. No. 471 ....T.D. 1,040 ft.; S.D. in lime.

WEBB COUNTY

E. B. Madden's No. 1 Bruni, 150 ft. from E line, 230 ft. from S line of 105-ac. tract in Sur. No. 2,241....T.D. 2,528 ft.; abd.
Edwin M. Jones' No. 2 Callaghan, 330 ft. from S and E lines of C.C.S.D.&R.G.N.G. R.R. Sur. No. 1,211.... Dropped till work starts.
Merle Gunby's No. 1 A. M. Bruni, 1,252 ft. from W line, 328 ft. from S line of Sur. No. 857 ....T.D. 1,972 ft.; drlg.
Will Ohlhausen's No. 1 Moses Jones, 273 varas from E line, 516 varas from S line of 100-ac. tract in Sur. No. 1,640 ....T.D. 850 ft.; standing.

WILLIAMSON COUNTY

Alexander Drlg. Co.'s No. 1 J. & G. Kreig ....T.D. 1,550 ft.; fishing.
Fritz Fuchs' No. 1 Zeischang ....T.D. 1,075 ft.; standing; shot with dynamite; no increase.
McLean et al's No. 3 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tract, B. Manlove Sur. ....T.D. 2,265 ft.; standing.
Pederson's No. 4 Forwood, 900 ft. from N and 1,200 ft. from E line of 160-ac. tract in Fisher Sur. ....T.D. 650 ft.; drlg. shale.
Taylor Production Co.'s No. 1 Backmeyer, 283 ft. from N line, 396 ft. from E line of 38-ac. tract in White Sur. ....T.D. 864 ft.; showing a little oil; swbd. dry.
Wilson, Worley & Moore's No. 1 Mrs. M. E. Olive ....T.D. 41 ft.; S.D.

ZAPATA COUNTY

J. C. Charver's No. 1 Bustamente, 330 ft. from N and E lines of 24-ac. tract in Share 24 of Las Comitas grant ....T.D. 1,342 ft.; drlg.
Hamilton, Brower & Crow's No. 1 Slator, 2,111 ft. from SW line, 1,980 ft. from SE line of Blk. 1, Subd. of Slator ranch in J. V. Borrego grant ....T.D. 1,069 ft; standing.
Circle W. Oil Co.'s No. 1 M. Garza est., 623 ft. from NW line and 699 ft. from SW line of Blk. 30, C. A. Douglas Subd. of Charco de la India grant ....T.D. 1,210 ft.; drlg.
J. P. Doyle's No. 1 I. Ramirez, 150 ft. from NW and SW lines of Blk. 15, Share 1, Porcion 18 ....Spudded in and S.D.
Sarah Poppas' No. 1 Juan V. Cueller, Jr., 150 ft. from NE and SE lines of Blk. 3, Sur. 2 of Poppas Subd. of Por. 34 ....T.D. 770 ft.; standing.
A. C. Savey et al's No. 1 Flores, 150 ft. from NW line, 206 ft. from NE line of Blk. 5, Share 1 of P. A. Richer Subd. of Porcion No. 38 ....T.D. 2,404 ft.; tested mud and little oil.

ZAVALA COUNTY

Zavala O. & G. Co.'s No. 1 Gates, 1,320 ft. from N line, 1,320 ft. from E line of Hooper & Wade Sur. No. 13..T.D. 6,054 ft; hole cleared; standing.

Southwest Texas Proven Areas

Week Ending October 7

CEDAR CREEK POOL—BASTROP COUNTY

Marts & Beavens' No. 1 C. A. Smith, 700 varas from SE line, 1,150 varas from NE line of C. A. Smith 415-ac. tract in James Bialock Sur. No. 7 ..... Building derrick.

Marts & Beavens' No. 5 Reyes, 530 varas from NW line, 1,420 varas from SW line of 233-ac. tract in Addison Lytton Sur. ..... T.D. 1,665 ft.; coring dry Serp.

Joe Mills' No. 1 Nona, 400 ft. to E line, 150 ft. S of 78-ac. tract in Addison Litton Sur. ..... T.D. 1,874 ft.; bailing sand 1,768-86 ft.; tested dry.

NORTH DALE POOL—BASTROP COUNTY

Chiquita Oil Co.'s No. 3 Harris, 600 ft. SW of No. 1 or 60 ft. from Bee Creek and 140 ft. from W line of 40-ac. tract in John Maxmillan Sur. ..... T.D. 2,300 ft.; drlg. plugs.

Marts & Beavens' No. 3 Riddle, 685 ft. from NW line, 2,075 ft. from SW line of John Maxmillan Sur. .... Bldg. derrick.

Marts & Beavens' No. 3-A Riddle, 200 ft. from NW line, 1,100 ft. from NE line of John Maxmillan Sur.. T.D. 2,224 ft.; comp. 60 bbls.

Ogden & Reed's No. 1 Spradlin, 300 ft. from S line, 200 ft. from E line of 113-ac. tract in Grey Sur .Rigged up; standing.

Ogden & Reed's No. 3 Riddle, from S cor. of Joshua Gray Sur. NE along SE line 760 ft. thence NW 150 ft. at right angles in Joshua Gray Sur. ..... Rigging up.

TULETA POOL—BEE COUNTY

Conservative Oil Co.'s No. 1 Coutts, 165 ft. from W line, 150 ft. from N line of SW SW SW Sec. 2, Blk. 7, Ragsley Subd., Miller Chittam ranch, J. M. Uranga grant ..... T.D. 4,478 ft.; tested S.W.; P.B. to 4,126 ft.

ECKERT POOL—BEXAR COUNTY

Eckert & Son's No. 9 Brehm, 150 ft. from S line and 190 ft. from W line of 93-ac. tract in Buquor Sur. .. T.D. 610 ft.; drlg.

J. F. Harrison's No. 1 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J Montez Sur. .. .. T.D. 435 ft.; standing

Swearingen Oil Co.'s No. 14 Halbardier, 700 ft. N of No. 3 on 93-ac. tract ..... T.D. 650 ft; drlg.

Swearingen Oil Co.'s No. 15 Halbardier, 2,350 ft. from W line, 850 ft. from N line of Jose Maria y Perez Sur. ..... T.D. 610 ft.; in shale; standing.

WEBSTER POOL—CALDWELL COUNTY

C. J. Webster Oil & Gas Co.'s No. 1 Fulps, 150 ft. from E line, 225 ft. from S line of tract in John A. Neill Sur. ..... T.D. 2,395 ft.; topped Edwards stained with oil; D.S. test at 2,297 ft. failed to show.

EAST COLE FIELD—DUVAL COUNTY

Cole Petroleum Co.'s No. 1 S. Benavides, 150 ft. from SW line, 347 ft. from SE line, Blk. 347, Myrtle E. Hill Subd., Mariana Arispe grant ..... T.D. 2,719 ft.; drlg.

NORTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Central Producers, Inc.'s No. 7 Tuck & Johnson, 330 ft. from S and W lines of SE SW of Sur. No. 42 .... T.D. 2,307 ft.; comp. 25 bbls. hrly.

Rodney DeLange's No. 1 Lundell, 330 ft. from S line, 150 ft. from E line of SW of Sur. No. 60 ..... T.D. 250 ft.; drlg.

Hamil & Hamil's No. 7 Hahl, 330 ft. from S line, 990 ft. from E line of N½ of SE of Sur. No. 42 .. T.D. 1,200 ft.; drlg.

Hamil & Hamil's No. 6 Hahl, 330 ft. from N and E lines of N half of SE of Sur. No. 42 ..... T.D. 2,301 ft.; comp. 30 bbls. hrly.

Hester Bros.' No. 1 fee, 330 ft. from S and E lines of NE of Sur. No. 47 ..... T.D. 200 ft.; fooling around.

Highland Oil Co.'s No. 7 Lundvall, 330 ft. from N and E lines, J. Poetevant Sur. No. 42 ..... T.D. 2,300 ft.; comp. 25 bbls. hrly

Humble O. & R. Co.'s No. 16 Hahl, 990 ft. from S line, 990 ft. from W line of E½ of Sur. No. 360 ..... T.D. 1,200 ft.; drlg.

Al Buchanan et al's No. 4 Ellison, 330 ft. from N and W lines of (40-ac.) NE of NW of Sur. No. 44 ..... Dropped from report; not to be drilled at present.

Humble Oil & Refining Co.'s No. 13 Hahl, 3,670 ft. from S line, 330 ft. from W line of E half of Sur. No. 360.. T.D. 2,304 ft.; flowing; not gauged.

Humble Oil & Refining Co.'s No. 14 Hahl, 4,350 ft. from S line, 330 ft. from W line of E half of Sur. No. 360.. T.D. 2,297 ft.; comp. 60 bbls. hrly.

Humble Oil & Refining Co.'s No. 15 Hahl, 330 ft. from N and W lines of E half of Sur. No. 360 ..... T.D. 107 ft.; set surface csg.

Magnolia Pet. Co.'s No. 1 Duval County Ranch Co., 2,310 ft. from W line, 330 ft. from S line of Sur. No. 208 ..... T.D. 2,315 ft.; comp. 45 bbls. hrly.

Magnolia Pet. Co.'s No. 2 Duval County Ranch Co., 330 ft. from S line, 936 ft. from E line of Sur. No. 208 ..... Derrick.

Navarro Oil Co.'s No. 25 Hahl, 330 ft. from N line, 990 ft. from E line of W½ of Sur. No. 360 ..... T.D. 2,100 ft.; drlg.

Navarro Oil Co.'s No. 10 Hahl, 990 ft. from N line, 330 ft. from W line of W½ of Sur. No. 360 ..... T.D. 2,295 ft.; running tubing.

Navarro Oil Co.'s No. 28 Hahl, 2,310 ft. from S line, 990 ft. from W line, W half of Sur. No. 360 ..... T.D. 2,250 ft.; set csg.; W.O.C.

Navarro Oil Co.'s No. 29 Hahl, 2,970 ft. from S line, 990 ft. from W line, W half of Sur. No. 360 ..... T.D. 2,256 ft.; set csg.; W.O.C.

Reynosa Oil Co.'s No. 4-A Duval County Ranch Co., 330 ft. from S line, 990 ft. from E line of N½ of SW¼ of Sur. No. 362 ..... T.D. 2,280 ft.; comp. 35 bbls. hrly.

Reynosa Oil Co.'s No. 3-B Duval County Ranch Co., 990 ft. from N line, 330 ft. from E line of E½ of SE¼ of Sur. No. 363 ..... T.D. 2,284 ft.; comp. 35 bbls. hrly

Reynosa Oil Corp.'s No. 5-A Duval Co. Ranch Co., 330 ft. from S and E lines of N half of SW of Sur. No. 362 ..... T.D. 1,100 ft.; drlg.

Russ Petroleum Co.'s No. 2-A Hahl, 330 ft. from N and E lines of NW SW, Sur. No. 46 ..... T.D. 1,050 ft.; drlg.

Smith & Storey's No. 5 Lundell, 150 ft. from N and E lines of S half SW of Sur. No. 48 ..... T.D. 2,250 ft.; drlg.

Sun Oil Co.'s No. 6 Weiderkehr, 660 ft. N of No. 4, Sur. No. 359 ..... T.D. 700 ft.; drlg.

Sun Oil Co.'s No. 7 Weiderkehr, 330 ft. from N and W lines of Sur. No. 359 ..... Derrick.

SOUTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 11 Paul White, 1,310 ft. from E line, 1,000 ft. from S line of Sur. No. 249.. T.D. 600 ft.; drlg.

SARNOSA POOL—DUVAL COUNTY

L. W. Capps' No. 6-A Duval County Ranch Co., 330 ft. from SW line, 1,380 ft. from NW line of W¼ of Sur. No. 574 ..... Rigged up and standing.

Navarro's No. 9 Hahl, 1,650 ft. from N line, 330 ft. from W line of W½ of Sur. No. 360 ..... T.D. 2,259 ft.; W.O.C.

Violet Oil Co.'s No. 1, 330 ft. from NW line, 525 ft. from SW line of N half of Sur. No. 127 ... . T.D. 2,303 ft.; drlg.

PALANGANO POOL—DUVAL COUNTY

Southern Alkali Corp.'s No. 3 Mrs. Jane Schallert, 2,-600 ft. from S line, 2,250 ft. from E line of Sur. No. 81 ..... T.D. 910 ft.; drlg.

PIEDRAS PINTAS POOL—DUVAL COUNTY

Kelley et al's No. 1 C. S. Tinney, 1,100 ft. from N line, 200 ft. from E line of Sur. No. 8 ..... T.D. 250 ft.; drlg.

CHITTIM POOL—MAVERICK COUNTY

Rycade Oil Corp. et al's No. 2 Chittim, 1,520 ft. from N line, 250 ft. from W line of Sec. 157, I.&G.N.R.R. Sur., Blk. 7 ..... T.D. 200 ft.; S.D.

JACOB POOL—McMULLEN COUNTY

Loma Oil Co.'s No. 17-A Jacob, 304 ft. from W line, 1,410 ft. from S line of G.H.&H. Sur. No. 7 ..... T.D. 990 ft.; drlg. in.

Longhorn Oil Co.'s No. 3-A Lark, 450 ft. from N line, 150 ft. from W line of Blk. 14, of Subd. of Lark land in E. W. B. Scrugham Sur. ..... T.D. 1,008 ft.; set csg.

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Boston ---- 1517 Consolidated Gas Bldg.
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Kennon & Stephenson's No. 1 Lark, 150 ft. from N and W lines of Blk. 15, subd. of Lark land in E. W. B. Scrugham Sur. ..... T.D. 1,033 ft.; set csg.; W.O.C.
J. S. Suttle's No. 1 Lark, 150 ft. from N and W lines of Blk. 16, in E. W. B. Scrugham Sur. ..... T.D. 1,048 ft.; running tubing; est. 30 bbls. daily.

AGUA DULCE FIELD—NUECES COUNTY

H. F. Grimm's No. 1 Bluntzer, 300 ft. from W line, 2,100 ft. from S line of 639-ac. tract in Elliff Sur. .. Location.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 1-D Guerra, 6,353 ft. from NE line, 3,300 ft. from SE line of La Sacatosa grant ..... Rigging up.
Sun Oil Co.'s No. 3-A Guerra, 5,940 ft. from NW line, 1,000 ft. from SW line of Share 14-B in Las Cuevitas grant ..... T.D. 2,650 ft.; abd.
Sun Oil Co.'s No. 4-A Guerra, 3,300 ft. from NW and SW lines of 1,360-ac. tract in Las Cuevitas grant... T.D. 2,265 ft; comp. 900 bbls. dly. 26.6 grav. oil.
Sun Oil Co.'s No. 5-A Guerra, 3,364 ft. from SW line, 6,595 ft. from SE of Share H-14-B of Las Cuevitas grant ..... Drlg. below surface csg.

LOS OLMOS POOL—STARR COUNTY

Tarver and Nance's No. 8-A Kelsey Bass, 150 ft. from N line, 160 ft. from W line of SW SE Sec. 6, Porcions 75, 76, 77, Jurisdiction of Camargo ..... T.D. 448 ft.; set csg.; W.O.C.

CAR-TEX POOL—WEBB COUNTY

Washington-Texas O. & G. Co.'s No. 1 R. O. Barnsley, 150 ft. from E line, 450 ft. from N line of Blk. 16, Sur. 268 ..... T.D. 1,800 ft.; drlg.

LAUREL FIELD—WEBB COUNTY

Montex Oil Co.'s No. 1 C. O. Haines, 150 ft. from S and E lines of Sur. 234 ..... T.D. 2,172 ft.; coring.

MOCA POOL—WEBB COUNTY

Moca Oil Co.'s No. 7 Duval County Ranch Co., 285 ft. from W line, 1,825 ft. from N line of Blk. 22, Share 3 of Zapata County School Land Sur. ..... T.D. 871 ft.; coring.

ESCOBAS POOL—ZAPATA COUNTY

S. R. & C. Oil Corp.'s No. 2-C Trevino, 330 ft. from S line, 330 ft. from W line of N½ of Blk. 13, in Sur. No. 412 ..... Location.
Texas Co.'s No. 43 Whitehead, 1,722 ft. from SE line, 19,507 ft. from SW line of Cerrito Blanco grant .. Derrick; moving in material.
Texas Co.'s No. 42 Whitehead ..... T.D. 1,207 ft.; comp. 60 bbls. dly.

JENNINGS POOL—ZAPATA COUNTY

United Prod. Corp.'s No. 11 Measles, 3,483 ft. from NW line, 16,500 ft. from SW line of Cerrito Blanco grant ..... T.D. 3,650 ft.; drlg.

Gulf Coast Fields and Wildcats

(Continued from Page 66)

Gulf Prod. Co.'s No. 1-D Barber, 78 ft. S, 65 ft. W of NE cor. ..... Derrick.
Humble O. & R. Co.'s No. 3-C Kirby ..... Abd.; skidding rig to new loc.
Sinclair Prairie Oil Co.'s No. 14 Wilburn (W.O.) ..... Rigging; T.D. 3,661 ft.
Sinclair Prairie Oil Co.'s No. 15 Wilburn, Henry Griffith League, 150 ft. W of No. 14 ..... Derrick.
Sinclair Prairie Oil Co.'s No. 16 Wilburn, 50 ft. N and 50 ft. W of No. 12 ..... Drlg. shale 1,010 ft.
Sun Oil Co.'s No. 11 J. Wilburn (W.O.), Wm. Hodges Sur. ..... Drlg. sand 5,382 ft.
Sun Oil Co.'s No. 14 J. Wilburn, Henry Hodges Sur. (W.O.) ..... Drlg. shale 4,857 ft.
Sun Oil Co.'s No. 16 J. Wilburn, Henry Griffith Sur. (W.O.) ..... C.O. at 3,760 ft.
Sun Oil Co.'s No. 17 Wilburn, Henry Griffith League, 150 ft. W of No. 6 and 50 ft. S of N line ..... Derrick.
Texas Co.'s No. 7 Wilburn (W.O.), Henry Griffith League Fishing drill pipe 5,174 ft.
Texas Gulf Prod. Co.'s No. 3 C. Kirby (W.O.) ..... Drlg. shale 5,390 ft.
Texas Gulf Prod. Co.'s No. 2 Fitzgerald, Henry Griffith League, 300 ft. W line, 80 ft. S line ..... Drlg. salt 1,516 ft.
Yount Lee Oil Co.'s No. 21 Chambers County (W.O.), Wm. Bloodgood Sur. ..... Drlg. hard sand, shale 3,936 ft.
Yount Lee Oil Co.'s No. 22 Chambers County, Wm. Bloodgood Sur., 300 ft. from W line, 262½ ft. from N line of lease ..... Drlg. sand and shale 4,678 ft.

BIG CREEK—FORT BEND COUNTY

C. & C. Drlg. Co.'s No. 1 Wheat, M. Young Sur., 265 ft. NE of Gulf's No. 3 Wheat ..... Drlg. shale 3,850 ft.
Gulf Stream, Inc.'s No. 1 A. H. Theis, 236 ft. E of old No. 4 A. H. Theis in line, Mitchell Young Sur. ..... Derrick.

RABBS RIDGE—FORT BEND COUNTY

Humble O. & R. Co.'s No. 11-A Lockwood & Sharp .... Comp. 19 bbls. per hour; ¼-in. choke, 5,372 ft.
Humble O. & R. Co.'s No. 17-B Lockwood & Sharp, 2,872 ft. N of E line, 1,129 ft. N of S line of L. & S. No. 1-A tract ..... Drlg. shale 4,611 ft.
Humble O. & R. Co.'s No. 24-A Lockwood & Sharp .... Drlg. shale 5,092 ft.
Humble and Gulf's No. 10 Meyers, J. Rabb Sur., 987 ft. E of No. 8 ..... Drlg. shale 4,976 ft.
Texas Co.'s No. 5 Waters, 300 ft. S, 300 ft. W from NE cor. of lease ..... Drlg. shale 1,250 ft.
West-Len Oil Co.'s No. 1 Mulahill, 300 ft. N of S line, 300 ft. W of E line ..... Drlg. shale 1,195 ft.

SUGARLAND—FORT BEND COUNTY

Dewalt Oil Co.'s No. 1 Peterson ..... Derrick.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 38 Cade, 600 ft. NW of No. 1-B Cade, 755 ft. from No. 1 Smith, N. Fitzsimmons Sur. ..... Rig.
Yount Lee Oil Co.'s No. 37 Cade, N. Fitzsimmons Sur., 600 ft. S of No. 36 ..... Drlg. shale 3,420 ft.
Yount Lee Oil Co.'s No. 1-B Cade, N. Fitzsimmons Sur., 488 ft. from S line, 320 ft. from E line ..... Cmtd. 5,910 ft.
Yount Lee Oil Co.'s No. 1-B Smith ..... Drlg. gumbo 3,060 ft.
Yount Lee Oil Co.'s No. 19 Smith, Martin Dunman Sur., 150 ft. N at right angles from center of line between 14 and 15 ..... Rig.

ARIOLA—HARDIN COUNTY

Republic-Houston Oil Co.'s No. 4 Ariola, 800 ft. NE of No. 1, Ariola Sur. ..... T.D. 4,794 ft. in salt; P.B. to sand 4,131-4,228 ft.; washing.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 102 Jordit, Jordit Sur. ..... Drlg. gumbo 303 ft.

SOUR LAKE—HARDIN COUNTY

Arlis Pet. Co.'s No. 1 Sour Lake Bank, H.&T.C. Sur., NW cor. Blk. 11, Sec. 49 ..... Drlg. shale 2,000 ft.
Sasmo Oil Co.'s No. 1 W. R. Sasewell, 940 ft. S of NW cor., and 600 ft. from E line, B.B.B.&C. Sur. ..... Derrick.

GOOSE CREEK—HARRIS COUNTY

Gulf Prod. Co.'s No. 17-A Tabb, Wm. Scott Sur., 1,288 ft. N line, 50 ft. E line (W.O.) ..... Rigging.

HUMBLE—HARRIS COUNTY

Texas Co.'s No. 24 Koehler (O.W.D.D.) ..... Drlg. lime and shale 3,325 ft.
Wilson Pet. Co.'s No. 1 Cicero (W.O.) ..... Drlg. sand 4,580 ft.

MYKAWA—HARRIS COUNTY

Crown-Framer Oil Co.'s No. 4 Minnetex, Wm. Lovett Sur., 165 ft. S, 120 ft. W of NE cor. Blk. 193 ..... T.D. 6,530 ft.; P.B. to 5,250 ft.; sidetracked; drilled to 6,460 ft. abd.

PIERCE JUNCTION—HARRIS COUNTY

Moody Corp.'s No. 4-A Whitehead ..... Abd. in salt 4,124 ft.
Rio Bravo Oil Co.'s No. 19-A Settegast (D.D.), J. Kopman Sur. No. 44, 2,585 ft. S, 285 ft. W of NE cor. of "A" lease ..... Drlg. sand 4,531 ft.
White & Ward's No. 1 Bullock ..... Drlg. 3,810 ft.

TOMBALL—HARRIS COUNTY

Humble O. & R. Co.'s No. 2 Bloecher, C. Goodrich Sur., center of 17-ac. tract ..... Drlg. shale 4,592 ft.
Humble Oil & R. Co.'s No. 1 Fredericks, center 15-ac. tract, J. M. Hooper Sur. ..... Drlg. sand 5,572 ft.

Humble O. & R. Co.'s No. 1-B Kobs, 1,399 ft. W of E line, 466 ft. N of S line, J. H. Edwards Sur. ..... Derrick.
Humble O. & R. Co.'s No. 1 Petrick, J. M. Hooper Sur., 600 ft. N line, 466 ft. E line of lease ..... Rig.
Humble O. & R. Co.'s No. 1 Quilter, A. Senchel Sur., 1,320 ft. out of NE cor. 320-ac. tract ..... Moving in material.
Humble O. & R. Co.'s No. 1 Theis, 600 ft. N of S line, 500 ft. E of W line, 100-ac. tract, C. Goodrich Sur. Drlg. shale 5,499 ft.
Magnolia Pet. Co.'s No. 1 Ervine, J. House Sur., 1,178 ft. E line, 1,399 ft. S line of lease ..... Drlg. shale 553 ft.
Magnolia Pet. Co.'s No. 1 Rudel-Oster, J. House Sur., 3,664 ft. S line, 162 ft. W line ..... Drlg. shale 1,370 ft.
Texas Co.'s No. 1 H. Martens, C. Goodrich Sur., 666 ft. W, 300 ft. N of SE cor. of lease ..... Swbng. 5,552 ft.

FANNETT—JEFFERSON COUNTY

Black Gold Oil Co.'s No. 1 Jackson, Wm. Smith Sur., 3,766 ft. S line, 117 ft. from W line (356) ..... Derrick.
Gulf Prod. Co.'s No. 7 Burrell, W. H. Smith Sur., 150 ft. W of No. 6 ..... Drlg. sand 3,749 ft.
Gulf Prod. Co.'s No. 13 Thomas, W. H. Smith Sur. .... Comp. 315 bbls.; ½-in. choke, 4,-199 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Co.'s No. 7 Davis (W.O.), Duncan Sur. Drlg. shale 7,078 ft.
Cranfill-Reynolds Co.'s No. 11 Moores Bluff, Duncan Sur., 2,100 ft. from N line, 1,069 ft. from E line of 632-ac. tract ..... Drlg. shale 4,506 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 2 Crowe & Jacobs, 1,700 ft. E, 1,050 ft. N of SW cor. of H.&T.C. Sur. No. 21 ..... Drlg. shale 6,421 ft.

HULL—LIBERTY COUNTY

Eclipse Oil Co.'s No. 1 Ward, (W.O.) Jesse Devore Sur., 50 ft. S, 50 ft. W of NE cor. Empire G. & F. Co.'s 13 acres ..... Drlg. sand 5,158 ft.
W. B. Flynn's No. 2 Flynn, J. Devore Sur., 25 ft. S No. 1. Drlg. sandy shale 1,546 ft.
Houston Prod. Co.'s No. 2 Orgain, 300 ft. E of No. 1 .. Derrick.
Humble O. & R. Co.'s No. 1 Hannah, 204 ft. N, 312 ft. W, SE cor. of lease ..... Blew out 4,450 ft.; abd.
Miramar Oil Corp.'s No. 3 Phoenix Dev. Co., Jesse Devore Sur., 400 ft. due E of No. 1 Phoenix Dev. .... Shale 4,450 ft.; cmtd. csg.
Republic Prod. Co.'s No. 149 Dolbear (W.O.), Jesse Devore Sur., 250 ft. W of No. 6 ..... No report.
The Texas Co.'s No. 8 Hannah (W.O.), Jesse DeVore Sur. ..... T.D. 5,376 ft.; reaming to 3,889 ft.

LIBERTY FIELD—LIBERTY COUNTY

Ross Oil Co.'s No. 1 Richardson, M. G. White Sur., 120 ft. E of Gulf-Humble's No. 1 Carter ..... Derrick.

CONROE—MONTGOMERY COUNTY

Alpha Oil Co.'s No. 3 South Texas ..... Comp. 21 bbls. per hour; ½-in. choke; T.D. 5,130 ft.
Brown & Wheeler's No. 1 Gilbert, J. A. Davis Sur., 1,050 ft. S, 4,327 ft. W of lease ..... Rigging.
Feltex Oil Co.'s No. 4 Kirby-Bertrand ..... Drlg. sand 5,140 ft.
Gulf Coast Drlg. & Prod. Co.'s No. 2 J. L. Hensley, A. Steele Sur., 466 ft. S line in center E and W of strip ..... Derrick.
Gulf Coast Drlg. & Prod. Co.'s No. 11 Keystone Mills. Drlg. shale 1,326 ft.
Gulf Coast Drlg. & Prod. Co.'s No. 12 Keystone Mills, A. James Sur., 467 ft. W line, 933 ft. S of No. 11. Drlg. sand 5,148 ft.
Gulf Oil & Sulphur Co.'s No. 2 Springfield, J. S. Springfield Sur., 466 ft. from SW line, 100-ac. lease ..... Derrick.
Gulf Coast Drlg. & Prod. Co.'s No. 5 Keystone Mills ... Comp. 511 bbls. a day; ¼-in. choke, 5,064 ft.
Harrison & Abercrombie's No. 6 Massey, 466 ft. S and E lines of lease, T.&N.O. Sur. ..... Coring 5,073 ft.
Houston Oil Co.-Tide Water Oil Co.'s No. 9 Hamman.. Comp. 119 bbls. in 13 hrs.; ⅛-in. choke, 5,162 ft.
Humble O. & R. Co.'s No. 11 Dobbins ..... Shale 5,117 ft.
Humble O. & R. Co.'s No. 12 Madeley, Ransom House Sur., 800 ft. N line, 1,310 ft. W line of tract ..... Drlg. shale 5,055 ft.
Humble O. & R. Co.'s No. 25 Madeley, Ransom House Sur., 933 ft. S of No. 15 ..... Drlg. shale 4,185 ft.
Humble O. & R. Co.'s No. 4 T. B. McComb, L. Smith Sur., 650 ft. W line, 1,100 ft. S line ..... Shale 5,131 ft.; comp. 75 bbls. per hr.; ½-in. choke.
Humble O. & R. Co.'s No. 5 L. B. McComb, L. Smith Sur., 650 ft. N line, 1,200 ft. W line ..... Shale 5,127 ft.; comp. 75 bbls. per hr.; ½-in. choke.
Humble O. & R. Co.'s No. 31 Moore, L. Smith Sur., 933 ft. SW of No. 16 ..... Drlg. shale 227 ft.
Humble O. & R. Co.'s No. 34 Moore, L. Smith Sur., 933 ft. SW of No. 31 ..... Comp. 87 bbls. per hour; ⅛-in. choke, 5,125 ft.
Humble O. & R. Co.'s No. 39 Moore, L. Smith Sur., 933 ft. SW of No. 38 ..... Drlg. shale 3,760 ft.
Humble O. & R. Co.'s No. 43 Moore, L. Smith Sur. ..... Comp. 85 bbls. per hour; ⅛-in. choke, 5,135 ft.
Humble O. & R. Co.'s No. 48 South Texas Dev. Co., Theo. Slade Sur., 951 ft. SE of No. 1, 951 ft. NE of No. 7 ..... Drlg. shale 3,210 ft.
Humble O. & R. Co.'s No. 51 South Tex. Dev. Co., Theo. Slade Sur. ..... Drlg. shale 4,380 ft.
Humble O. & R. Co.'s No. 1-D South Tex. Dev. Co., 344 ft. E of center of W line of T.&N.O. Sur. No. 15.. Drlg. shale 5,062 ft.
Humble O. & R. Co.'s No. 2-D South Tex. Dev. Co. ..... Drlg. shale 500 ft.
Humble O. & R. Co.'s No. 1 B. Williams ..... Drlg. sand 5,062 ft.
Humble O. & R. Co.'s No. 2 J. Wiggins, T. M. Wiggins Sur., 330 ft E line, 600 ft. S line ..... Sand 5,151 ft.; comp. 500,000 ft. of gas; 3/16-in. choke.
Mortex Oil Corp.'s No. 1 J. C. Young, Wilson Strickland Sur., 231 ft. from E line, 131 ft. from S line of 2¼ acres ..... Cmtd. 5,086 ft.
Republic Prod. Co.'s No. 3 Griffin, Wilson Strickland Sur., 558 ft. W of Showers & Moncrief's No. 1-B Dunn ..... Comp. 74 bbls. per hour; ½-in. choke, 5,108 ft.
Republic Prod. Co.'s No. 4 Griffin, Wilson Strickland Sur., 270 ft. NW of J. N. Newman's No. 1 Young . Moving in derrick.
Showers & Moncrief's No. 2-A Dunn, 466 ft. N line, 430 ft. E line, Wilson Strickland Sur. ..... Comp. 119 bbls. per hr.; ½-in. choke, 5,128 ft.
R. D. Simonton, rec.'s No. 3 Hooper, J. W. Watson Sur., C of N 20 acres of 60-ac. lease ..... Comp. 95 bbls. per hour; ½-in. choke, 5,148 ft.
Strake Pet. Corp.'s No. 2 Etheridge, S. H. Bryan Sur., 467 ft. E line, 3,350 ft. S line lease ..... Drlg. shale 4,535 ft.
Strake Pet. Co.'s No. 3 Keystone Mills, S. H. Bryan Sur... Drlg. shale 5,108 ft.
Sun Oil Co.'s No. 12 Foster, J. Bricker Sur., 1,400 ft. SE of No. 13 ..... Drlg. shale 5,100 ft.
Sun Oil Co.'s No. 32 Foster, J. Bricker Sur., 1,858 ft. S, 1,613 ft. E of lease and survey line ..... Drlg. shale 5,084 ft.
Sun Oil Co.'s No. 1 Keystone Mills, 433 ft. S of N line, 429 ft. W of E line ..... Comp. 87 bbls. per hour; ½-in. choke, 5,130 ft.
Sun Oil Co.'s No. 2 Keystone Mills, 429 ft. E line, 1,-101 ft. S of No. 1 ..... Comp. 97 bbls. per hour; ½-in. choke, 5,132 ft.
Sun Oil Co.'s No. 3 Keystone Mills, 429 ft. E line, 1,-534 ft. S line ..... Drlg. sand 5,132 ft.
Sun Oil Co.'s No. 5 Keystone Mills, 1,271 ft. E line, 433 ft. W line ..... Drlg. sand 5,132 ft.
Sun Oil Co.'s No. 6 Keystone Mills, 1,057 ft. S of No. 5 and 875 ft. W of No. 2 ..... Spudding.
Texas Unity Oil Co.'s No. 1 Keystone Mills ..... Drlg. shale 920 ft.
West Prod. Co.'s No. 1 Foster Lbr. Co., 467 ft. N line, 650 ft. W line, Sec. 3, T.&N.O. Sur. ..... Drlg. sand 5,150 ft.

ORANGE—ORANGE COUNTY

Gulf Prod. Co.'s No. 12 Hager-Moore (W.O.) ..... No report.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 1-B Polk, Jacob Beaumont Sur., 150 ft. NE cor. ..... Drlg. gumbo 1,590 ft.
Texas Co.'s No. 2-B Polk, 695 ft. N, 150 ft. S of NE cor. of N. Jacob Beaumont Sur. ..... Drlg. sand 634 ft.
Texas Co.'s No. 4 Kuhn, 150 ft. E, 150 ft. N of NW cor. of lease ..... Rigging.

LIVINGSTON—POLK COUNTY

Gist Oil Co.'s No. 1 Kavanaugh Collins, A. Viesca Sur., 150 ft. NE, 150 ft. NW, SE cor. G. P. Reid's 740-ac. tract ..... Tested S.W. 4,387 ft.; standing.
Vick Borsodi et al's No. 1 West, E 3½ acres of 35 acres, Roberts tract, A. Viesca Sur. ..... Drlg. shale 1,950 ft.
Gist Oil Co.'s No. 1 Kingsbury County Holding Corp., A. Viesca Sur., 150 ft. N at right angles and 193 ft. E along S line of tract ..... Moving in material.
Humble O. & R. Co.'s No. 1 Grandbury, 1,320 ft. N, center E and W of 50-ac. tract ..... Rigging.
Polk County Drlg. Co.'s No. 1 Cooper, 330 ft. S, 200 ft. E, NW cor. 12½ acres, A. Viesca Sur. ..... Rigging.
Shell Pet. Corp.'s No. 2 Davis & Holmes, A. Viesca Sur., 485 ft. N, 376 ft. W of NE cor. of Jim Duff 35-ac. tract ..... T.D. 4,400 ft.; resetting tubing.
Skelly Oil Co.'s No. 1 Sanders, 785 ft. N of E line, 305 ft. S of N line, Sanders' 40 acres, A. Viesca Sur. ..... T.D. 4,315 ft.; fishing tubing.

GRETA—REFUGIO COUNTY

Atlantic and Alamo Oil Co.'s No. 1-E J. M. O'Brien, 340 ft. S line, 466 ft. E line ..... Drlg. shale 1,485 ft.
Atlantic-Alamo's No. 2-E O'Brien, 933 ft. N of No. 1, 466 ft. E line ..... Derrick.
Atlantic-Alamo's No. 3-E O'Brien, 933 ft. from No. 2, 466 ft. E line ..... Derrick.
Atlantic-Alamo's No. 5-E O'Brien, 933 ft. N of No. 4, 312 ft. E line ..... Drlg. gumbo 1,955 ft.
Atlantic Oil Prod. Co.'s No. 2-C O'Brien, 1,992 ft. N of No. 1 ..... Drlg. shale 1,100 ft.
Atlantic Oil Prod. Co.'s No. 3-C O'Brien, 2,788 ft. S of W line, 625 ft. W of E line ..... Drlg. gumbo 1,720 ft.
Atlantic Oil Prod. Co.'s No. 4-C O'Brien, 466 ft. out of NE cor. ..... Derrick.
Atlantic Oil Prod. Co.'s No. 5-C O'Brien, 1,193 ft. S of N line, 628 ft. E line ..... Derrick.
Atlantic Oil Prod. Co. and Heyser & Heard's No. 2 O'Brien ..... Drlg. shale 1,150 ft.
Circle W Oil Co.'s No. 3 O'Brien, 795 ft. S of No. 4, 466 ft. E line ..... Drlg. shale 3,920 ft.
Circle W Oil Co.'s No. 4 O'Brien, 795 ft. S of No. 3, 466 ft. E line ..... Drlg. shale 2,610 ft.
Dash Prod. Co.'s No. 3 O'Brien, N. S. Crunk Sur., 645 ft. of W line, 301 ft. at right angles R.R. ..... T.D. 4,391 ft.; S.O.; washing in.
Floboots Oil Corp.'s No. 1-C O'Brien, E. H. Winfield Sur., 466 ft. SE cor. Lot 14 ..... Drlg. sand 4,388 ft.
Floboots Oil Corp.'s No. 2-C O'Brien, 466 ft. out of SW cor. Lot 12 ..... Drlg. shale 1,315 ft.
Floboots Oil Corp.'s No. 1-B O'Brien, 466 ft. out of SW cor. ..... Drlg. shale 1,887 ft.
Greta Oil Corp.'s No. 1-C O'Brien, 250 ft. S line, 150 ft. E at right angles to highway ..... Derrick.
Greta Oil Corp.'s No. 2-C O'Brien, 250 ft. N line and 150 ft. E line at right angles to highway, Winfield Sur. ..... Drlg. 166 ft.
Greta Oil Co.'s No. 2 B. O'Brien, 933 ft. E of No. 1 B... Drlg. shale 2,586 ft.
Greta Oil Corp.'s No. 3-B O'Brien, 1,154 ft. E of No. 2-B, 460 ft. S of N line, 460 ft. NW of E line ..... Drlg. shale 2,945 ft.
Greta Oil Corp.'s No. 4-B O'Brien, 466 ft. NW of E line, 1,516 ft. E of W line, E. H. Winfield Sur. .... Set csg. 4,376 ft.
Humble O. & R. Co.'s No. 1 F. Heard, 466 ft. out of NW cor. Ximines Sur. ..... Rigging.
Edwin M. Jones' No. 2 O'Brien, E. H. Winfield Sur., Blk. 4, 466 ft. from N line in center E and W ..... Drlg. shale 960 ft.
Edwin M. Jones' No. 3-G O'Brien ..... Derrick.
Nesral Oil Co.'s No. 1 Ira Heard, M. J. Ximines Sur., 330 ft. out of NW cor. of 25-ac. tract ..... Drlg. shale 2,475 ft.
Nesral Oil Co.'s No. 2 O'Connor, 1,556 ft. SE of No. 1 and 466 ft. W of E line (R/A to EL) ..... Drlg. shale 2,780 ft.
Nesral Oil Co.'s No. 5 O'Connor ..... Derrick.
Rutherford and Atlantic's No. 2-B O'Brien ..... Drlg. shale 1,914 ft.
Southwest Oil Corp.'s No. 1-E O'Brien, E. H. Winfield Sur., 466 ft. E of W line, 466 ft. S of N line.. Drlg. shale 3,110 ft.
Southwest Pet. Corp.'s No. 2-A O'Brien, E. H. Winfield Sur., 466 ft. NW cor. 25-ac. tract ..... Drlg. shale 1,710 ft.
Texas Gulf Prod. Co.'s No. 1 J. M. O'Brien, J. A. Peoples Sur., 466 ft. SW cor., Blk. 3 ..... Drlg. shale 4,345 ft.
Texas Gulf Prod. Co.'s No. 2 J. M. O'Brien, J. A. Peoples Sur., 466 ft. NW cor., Blk. 2 ..... Moving in material.
Texas Gulf Prod. Co.'s No. 1 J. M. O'Brien, J. H. Winfield Sur., 466 ft. NS line, center E and W, Blk. 12 ..... Moving in material.
United Prod. Co.'s No. 4 Fox est., Wm. Hews and L. Brown Sur., 2,956 ft. N line, 787 ft. E line ..... Cmtd. csg. 4,362 ft.; T.D. in sand 4,390 ft.
United Prod. Co.'s No. 8 Fox est., 1,473 ft. N, 466 ft. E of SE cor. N. S. Cronk Sur. ..... Reaming 1,218 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 9 Clay, 600 ft. NE of No. 1 Clay, J. F. Perry Sur., 757-ac. tract ..... Drlg. shale 2,255 ft.

BOLING—WHARTON COUNTY

Asher et al's No. 2 Rogers, S. F. Austin Sur., 685 ft. NE, 115 ft. NW of S cor. W. G. Reagin & Son's tract Drlg. gumbo 1,215 ft.

SOUTH LOUISIANA FIELDS

ASSUMPTION PARISH

Barnsdall Oil Co.'s No. 1 Williams, 330 ft. out of NE cor. Sec. 35-14s-14e ..... T.D. 7,542 ft.; hole bridged at 5,-900 ft.; C.O. at 7,510 ft.

VINTON—CALCASIEU PARISH

Wilson Broach's No. 4 Wilson ..... Drlg. rock 3,806 ft.
Wilson Broach's No. 10 Wilson Strip, 650 ft. N, 379 ft. E of SW cor. SE NE Sec. 33-10s-12w ..... Derrick.
Gulf Ref. Co.'s No. 7 J. W. Gardner, 208 ft. E, 550 ft. N, SW cor. SE NE Sec. 33-10s-12w ..... Drlg. shale 3,936 ft.
Marrs-McLean's No. 12 Gray (W.O.) ..... Sand 2,739 ft.; made 75 bbls. of fluid.
Vinton Pet. Co.'s No. 1 Vincent ..... Rigging.
Vinton Pet. Co.'s No. 22 Vincent, 685 ft. N, 620 ft. E of SW cor. Sec. 34-10s-12w ..... Drlg. sand 2,774 ft.

CAMERON MEADOWS—CAMERON PARISH

Burton-Sutton Oil Co.'s No. 1 School Land, 500 ft. W, 20 ft. N, SE cor. Sec. 16-14s-13w ..... Drlg. sand 6,610 ft.
Humble O. & R. Co.'s No. 4 Cameron Meadows, 360 ft. N, 600 ft. W, SE cor. Sec. 21-14s-13w ..... Moving in rig.

CALCASIEU PARISH

Fred Oil Co.'s No. 1 Farrar, 566 ft. N, 300 ft. W, SE cor. NW SE Sec. 26-8s-10w ..... Rigging.
Union Sulphur Co.'s No. 1 Stout, 1,327 ft. N, 1,167 ft. W of SE cor. Sec. 28-8s-8w ..... Drlg. shale 7,970 ft.

CHOCTAW—IBERVILLE PARISH

Standard Oil Co. of La.'s No. 5 Myrtle Grove, 1,700 ft. N, 200 ft. W, SE SW cor. SW Sec. 52-9s-11e ..... Drlg. shale 625 ft.

EDGERLY—CALCASIEU PARISH

S. A. Emerson's No. 13 Hunter, 465 ft. N, 90 ft. E, SW cor. Sec. 21-9s-11w (W.O.) ..... Sand 4,118 ft.; made 80 bbls. pumping; not comp.

EVANGELINE PARISH

J. E. Leadau's No. 2 Vidrine, 260 ft. W, 400 ft. S, NE cor. Sec. 47-3s-2e ..... Standing 1,740 ft.

GUEYDAN—VERMILLION PARISH

ure Oil Co.'s No. 5 Alliance Trust Co., 625 ft. from N line, 580 ft. from W line of Sec. 34-11s-1w ..... Drlg. lime 4,871 ft.
Pure Oil Co.'s No. 1 Grady Lee-Humble, 1,031 ft. E. 225 ft. N of NW cor. Sec. 34, in Sec. 27-11s-1w... Drlg. shale 3,041 ft.
Pure Oil Co.'s No. 4 Mulvey, 1,721 ft. from N line, 2,515 ft. from W line of Sec. 34-11s-1w ..... Drlg. shale 4,703 ft.

LAFOURCHE PARISH

Gulf Ref. Co.'s No. 1 B. Community, 1,685 ft. E, 365 ft. NW Sec. 26-21s-22e ..... Drlg. gumbo 2,812 ft.
Barnsdall Oil Co.'s No. 1 Harang, Lot 6, in Twp. 17s-20e. Drlg. shale 5,110 ft.

FOR YOUR RECEIVING HOUSE

OCECO

CYLINDRICAL LOOK BOXES

Made in 3″—4″—6″ sizes of tough heat resisting glass cylinders, providing plenty of light and a *good view always.*

WRITE FOR INFORMATION

THE OIL CONSERVATION ENGINEERING COMPANY

877 Addison Road Cleveland, Ohio

Fourteenth Annual Meeting A. P. I., Chicago, Ill.

October 23rd-26th 1933

SPECIAL TRAIN VIA FRISCO-ALTON RAILROADS

The SPECIAL TRAIN will leave Tulsa 2:30 P. M., Sunday, October 22nd., arriving Chicago, Union Station, at 8 A. M., Monday, October 23rd.

Equipment furnished will be of the latest type and design and as an added feature air-conditioned diners and lounge cars will be furnished for the entire trip.

The FRISCO-ALTON Railroads have reserved rooms at the Stevens Hotel to accommodate our party and special registration desk will be provided at the 8th street entrance, eliminating delays in the assignment of rooms—the hotel situation is acute but we have the assurance our party will be given preference in the assignment of their rooms.

For pullman or hotel reservations, please call Frisco Lines, Philcade Building, Telephone 3-3151.

P. F. ATKINSON, City Passenger Agent

L. A. DAVIS, District Passenger Agent

J. E. PAYNE, Traffic Manager.

FRISCO LINES

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 9 Lake Barre-L.L.&E., 4,013 ft. S, 305 ft. E of NW cor. Sec. 30-21s-20e in Sec. 36-21s-19e ..... Drlg. anhydrite 3,167 ft.

Texas Co.'s No. 23 State-Lake Barre, 150 ft. northerly from No. 18 ..... Drlg. lime and shale 3,876 ft.

LAKE WASHINGTON—PLAQUEMINES PARISH

Freeport Sulphur Co.'s No. 14 Cockrell & Morrow ..... Abd. 1,490 ft.

Humble O. & R. Co.'s No. 3 La. State, Twp. 20s-26e, 2,920 ft. N, 19 ft. E of station ..... Cmtd. csg. 205 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia's No. 9 Farquaher, 200 ft. N. 150 ft. E of SW cor. NE SE Sec. 8-10s-9w (O.W.D.D.) ..... Drlg. sand 5,684 ft.

Magnolia Pet. Co.'s No. 4-A Watkins fee, 685 ft. E, 200 ft. N of SW cor. NW NE Sec. 9-10s-9w ..... Drlg. shale 3,614 ft.

Union Sulphur Co.'s No. 1 Moss (W.O.) ..... Rigging.

HACKBERRY—CAMERON PARISH

Gulf Ref. Co.'s No. 12 Irwin, 865 ft. N, 518 ft. E of SW cor. Sec. 44-12s-9w ..... Drlg. hard shale 7,348 ft.

Pop Oil Co.'s No. 1 Yount Lee, 3,996 ft. W, 100 ft. N of SE cor. Sec. 19-12-10w ..... Cmtd. csg. 3,922 ft.

S. H. Rhodes' No. 1 ..... Drlg. salt 1,830 ft.

Texas Co.'s No. 10-B State, 1,000 ft. E, 200 ft. N of NE cor. Sec. 13-12s-10w ..... Sand 7,272 ft.; made 525 bbls. net oil.

Union Sulphur Co.'s No. 7 Gulf Land-Humble lease, 1,010 ft. N, 661 ft. E of SW cor. Sec. 12-12s-10w.... Sand 6,140 ft.; made 313 bbls. ⅝-in. choke.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Barnsdall Oil Co.'s No. 1 Heyd, 330 ft. SW cor. of E½ SW Sec. 7-9s-6w ..... Drlg. sandy shale 4,504 ft.

Magnolia Pet. Co.'s No. 2 Willett, 990 ft. N, 330 ft. E of SW cor. NW Sec. 7-9s-6w ..... Sand 7,017 ft.; tested S.W.; pulling liner.

Shell Pet. Corp.'s No. 5 Heyd, 325 ft. S of NW cor. of Sec. 18-9s-7w, and 225 ft. W of E line of Sec. 13.. Drlg. sand 6,827 ft.

Shell Pet. Corp.'s No. 6 Heyd, 660 ft. S line, 660 ft. W line of lease, Sec. 18-9s-7w ..... Drlg. 4,470 ft.; S.O.

Shell Pet. Corp.'s No. 2 Stafford, 330 ft. from W line and 265 ft. from S line of NW Sec. 18-9s-6w ..... Drlg. sand 6,688 ft.

Shell Pet. Corp.'s No. 1 Tuten, 265 ft. S, 330 ft. W of NE cor. SW Sec. 13-9s-7w ..... Temp. S.D. 1,337 ft.

JEFFERSON DAVIS PARISH

B. D. Finley et al's No. 1 Clarphy Lognion, SW NW Sec. 22-10s-4w, 800 ft. N, 50 ft. W of SW NW..... T.D. 5,465 ft.; standing.

Humble O. & R. Co.'s No. 2 Devilbiss, 1,850 ft. S, 250 ft. W of NE cor. Sec. 14-9s-4w ..... T.D. 7,843 ft.; sidetracked 7,100-7,581 ft.; fishing.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 13 Houssiere-Latrielle, Sec. 47-9s-2w, 300 ft. E of No. 12 ..... Drlg. anhydrite 5,259 ft.

EAST BATON ROUGE PARISH

British-American Oil Co.'s No. 1 Louisiana, 2,750 ft. NE NW cor. Sec. 79, and 1,700 ft. N of NE Sec. 79, in Sec. 6-8s-1e ..... Drlg. shale 4,444 ft.

LEESVILLE—LA FOURCHE PARISH

Texas Co.'s No. 7 L.L.E., 2,921 ft. S, 300 ft. W of NE cor. Sec. 27-21s-22e ..... Drlg. sand 3,565 ft.

PORT BARRE—ST. LANDRY PARISH

Cale O. & G. Co.'s No. 1 Thompson ..... Cmtd. csg. 212 ft.

Campbell et al's No. 1 J. E. Jeonsonne, Sec. 7-6s-5e, 30 ft. N of S line in center E and W of 30-ac. tract.. Drlg. shale 3,775 ft.

Texas Co.'s No. 17 Botney Bay, 1,800 ft. S 8 deg. W, 600 ft. N 82 deg. west southern NE 560 deg. tract, Sec. 4-6s-5e ..... Derrick.

PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 11 Cockrell & Moran ..... Drlg. gumbo 325 ft.

Humble O. & R. Co.'s No. 12 Cockrell & Moran ..... Standing 1,169 ft.

Southern Sulphur Co.'s No. 1 Bay Adams ..... Rig.

Texas Co.'s No. 9 Garden Island Bay, 4,791 ft. S, 2,-504 ft. W of NE cor. Sec. 104-23s-32e ..... Drlg. cap rock 2,105 ft.

SORRENTO—ASCENSION PARISH

Union Sulphur Co.'s No. 1 Lacey Frank, 1,640 ft. N, 1,175 ft. W, SE cor. Sec. 16-10s-4e ..... T.D. 1,400 ft.; fishing.

STARKS—CALCASIEU PARISH

Gulf Ref. Co.'s No. 11 Lutcher-Moore (D.D.), 1,270 ft. W, 885 ft. N of SE cor. NE Sec. 19-9s-12w..... Drlg. sticky shale 4,474 ft.

Union Sulphur Co.'s No. 3 Industrial Lbr. Co., 2,400 ft. N, 412 ft. W, SE cor. Sec. 19-9s-12w ..... Drlg. shale 3,185 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 779 fee, 1,153 ft. N, 795 ft. E of center of Sec. 29-9s-10 ..... Drlg. shale 1,790 ft.

Union Sulphur Co.'s No. 783 fee, Sec. 29-9s-10w ..... Salt 5,117-5,761 ft.; drlg. new hole 4,486 ft.

Union Sulphur Co.'s No. 786 fee ..... Rigging.

Union Sulphur Co.'s No. 781 fee, 1,768 ft. W, 726 ft. N of C Sec. 29-9s-10w ..... Drlg. shale 1,789 ft.

ST. BERNARD PARISH

Southern Sulphur Co.'s No. 1 Lake Lery, 400 ft. W, 500 ft. N, SW cor. Sec. 28-13s-15e ..... Cmtd. csg. 212 ft.

Southern Sulphur Co.'s No. 1 State Lake Bargne, 850 ft. N, 230 ft. E, SE cor. Sec. 32-13s-15e ..... Cmtd. csg. 650 ft.

ST. LANDRY PARISH

Gaunch Synd.'s No. 1 Lewis, 300 ft. N and E of SW cor. NW NE Sec. 29-5s-6e ..... Derrick.

H. H. Hotchins Lbr. Co.'s No. 1 Whiteman Lbr. Co., 250 ft. out of SW cor. NE Sec. 15-5s-6e ..... Cmtd. csg. 710 ft.

ST. MARTIN PARISH

Standard Oil Co. of Kansas' No. 1 E. B. Hopkins, Sec. 33-10s-6e ..... Cmtd. 6,010 ft.

TERREBONNE PARISH

Texas Co.'s No. 6 State Bay-St. Elaine, 700 ft. S of No. 3, Sec. 17-22s-18e ..... No report.

Texas Co.'s No. 1 State Bay-St. Elaine, 3,900 ft. N, 2,300 ft. E of SW cor. Sec. 8-22s-18e ..... Moving in.

VERNON PARISH

E. Dawson's No. 1 Delta Land & Timber Co., C SW SW Sec. 2-1n-11e ..... T.D. 2,820 ft.; sidetrack 2,615 ft.; drlg. new hole, sand 2,703 ft.

R. E. Kay et al's No. 1 Willis, 350 ft. N, 400 ft. E, SW cor. SE SE Sec. 32-3-9w ..... Drlg. sandy shale 3,776 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 7 Wilburn, 625 ft. N 60 deg. W, 1,165 ft. N 29 deg. E, SE of Lot 2, Sec. 9-11s-12e.. Drlg. shale 4,531 ft.

TEXAS

MISCELLANEOUS WILDCATS

AUSTIN COUNTY

R. R. Mitchell's No. 1 H. Schlerda, J. F. Fitzgibbons Sur., 300 ft. out NE cor. 96-ac. tract ..... Moving in material.

BRAZOS COUNTY

H. Elliott et al's No. 1 W. F. Odom, near center of 379-ac. tract in SW cor. of Isaac Curll Sur. ..... Derrick.

F. H. Scott's No. 1 Klintworth, I. Curd Sur., 300 ft. from N line, 400 ft. from E line ..... No report.

CHAMBERS COUNTY

Smith & Lavender's No. 1 McCormick, F. Ludlow Sur., 150 ft. NE cor. ..... Derrick.

COLORADO COUNTY

Columbus Dev. Co.'s No. 1 Miller, H.T.&B. No. 8, 2,268 ft. E of W line, 1,345 ft. S of N line of survey.. Drlg. shale 3,179 ft.

Humble O. & R. Co.'s No. 1-C Powell, I.&G.N.R.R. Sur., 1,686 ft. E, 573 ft. S of NW cor. Blk. 43..... Drlg. shale and lime 6,070 ft.

Weimar Oil Co.'s No. 1 Miller ranch, approx. center H.&T.B. Sur. No. 9 ..... Derrick.

FORT BEND COUNTY

Fresno Oil Corp.'s No. 1 M. T. Wood, T. Gleason Sur., center of 10-ac. tract (Blk. 474) ..... T.D. 5,032 ft.; standing.

Quintana Oil Co. and Great So. Life's No. 1 Great So. Life, E. Robertson Sur., 500 ft. S of N line, 500 ft. W of Brazos River ..... Drlg. gumbo 4,487 ft.

A. N. Phillips et al's No. 1 Grigar, 2,150 varas E line, 1,550 varas N line, J. S. O'Connor Sur. ..... Drlg. shale 600 ft.

GRIMES COUNTY

Clark & Dodd's No. 1 Murry, 150 ft. W line, 300 ft. S line, Anderson Sur. ..... Spudded; standing.

Cambrian Oil Co.'s No. 1 W. V. Sangster, John Moore Sur., 300 ft. out of most westerly NW cor. of 218-ac. tract ..... Derrick.

Foster et al's No. 1 Quinn, 7,100 ft. from W line, 3,900 ft. from N line of S. F. Austin Sur. ..... Standing 65 ft.

Humble O. & R. Co.'s No. 1 Seaton, F. G. Seaton Sur., 260 ft. N and W. 71-ac. tract ..... Drlg. shale 932 ft.

H. C. Ratcliff's No. 1 Fulgham, A. Tuttle Sur., 600 ft. N line, 540 ft. W line of lease ..... Derrick.

HARRIS COUNTY

Cockburn Oil Corp.'s No. 1 C. Marcus, Wm. Hardin Sur., 1,500 ft. S along E line of 55-ac. tract from Buffalo Bayou and 300 ft. W at right angles ..... Drlg. sticky shale 6,295 ft.

Hamilton et al's No. 1 Hargroves, W.C.R.R. Sur. No. 10, Blk. 1, 1,750 ft. E line, 645 ft. N line ..... Drlg. shale 5,410 ft.

J. A. Hodges' No. 1 Scott, 200 ft. S, 900 ft. W of intersection of Crosby Huffman, F. Rankin Sur. ..... Drlg. sand 300 ft.

H. B. Jordan's No. 1 Cochran, J. L. Jordan Sur., 1,950 ft. S line, 1,930 ft. E line ..... Standing 2,045 ft.

Russell et al's No. 1 Burt & Griffith, S. Keely Sur., 200 ft. N line, 200 ft. E of highway ..... Spudding.

Jack Schultz et al's No. 1 West Prod. Co., Geo. Dedrick Sur., 800 ft. W of R.R., 100 ft. N of S line .... T.D. 3,870 ft.; P.B. to 3,404 ft.; comp. 12,000,000 ft. gas; ¾-in. choke.

Simon & Link's No. 1 Ellis, 658 ft. from N line, 1,130 ft. from W line of Sec. 22, Geo. Ellis Sur. ..... Drlg. lime 6,220 ft.

E. E. Young et al's No. 1 Paddock, J. Cunningham Sur., 300 ft. W of E line of Blk. 41 on line dividing Blks. 46 and 47 ..... Standing 650 ft.

JACKSON COUNTY

Continental Oil Co.'s No. 1 Vincek, V. Garcia Sur., 1,800 ft. W, 200 ft. N of SE cor. of Lot 17, Bennett Subd. ..... Reaming to D.D. 6,005 ft.

Ed Parsons et al's No. 1 Clark, 300 ft. out SW cor. of R. J. and M. Clark lease, A. S. White Sur. ..... Derrick.

JASPER COUNTY

Turnball & Erwin's No. 1 Green, W. B. Green Sur., 2,269.3 varas S. 857 varas W of NE cor. ..... Drlg. shale 2,080 ft.

Venza Oil Co.'s No. 1 Garland Smith, Elijah Isaacs Sur., 650 varas E of SE cor. S. Cruse Sur. ..... T.D. 4,010 ft.; abd.

JEFFERSON COUNTY

Sun Oil Co.'s No. 1 Paggi, 990 ft. W, 1,610 ft. N of SE cor. of T.&N.O. Sur. No. 32 ..... Sand 6,003-28 ft; showing oil; re-setting screen and swabbing; to test.

LIBERTY COUNTY

W. W. Algren, tr.'s No. 1 Nona Mills Lbr. Co., J. E. Mayfield Sur., 400 ft. from W and 200 ft. from N line of lease ..... Drlg. shale 700 ft.

Hamill & Smith's No. 1 Peavey, 2,083 ft. N, 330 ft. W of SW cor. J. S. Johnson's 319-ac. tract ..... Drlg. shale 5,405 ft.

H. Mecom's No. 1 E. W. Paggett, 450 ft. W line, 110 ft. N of S line, 5-ac. tract, N. G. White Sur. ..... Drlg. shale 3,260 ft.

Thomas et al's No. 1 A. Ercke, 600 ft. E of W line, 2,350 ft. N of S line, A. H. Ercke Sur. in Reason & Green Sur. ..... Drlg. shale 3,015 ft.

J. K. Seale, tr.'s No. 1 T. W. Finley, A. B. Hardin Sur., 330 ft. out of SW cor. of 25-ac. tract ..... Abd. 5,038 ft.

MATAGORDA COUNTY

Continental Oil Co.'s No. 1 Boker, 400 ft. out of SW cor. Lot 17, Robbins & Middle Subd., J. W. Criswell Sur. ..... Stuck D.S. in heaving shale 6,504 ft.; fishing at 5,200 ft.

Oils Consolidated, Inc.'s No. 1 Hawkins, Daniel McCarthy Sur., 1,240 ft. NE, 350 ft. NW of S cor. .... Derrick.

United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye Townsite ..... T.D. 7,872 ft.; cutting and pulling screen.

United North & South Dev. Co.'s No. 1 Unit 25, 1,325 ft. S, 1,000 ft. E of No. 1 Unit 6 ..... T.D. 7,775 ft.; set whipstock; sidetracking.

MONTGOMERY COUNTY

Gholson Bros.' No. 1 Crawford, 757 ft. due S from SE cor. of Mary Guber 48-ac. tract ..... Drlg. shale 3,040 ft.

McElroy Oil Co.'s No. 1 McWhorter, T. J. Nichols Sur., 390 ft. N of center of W 1,000 acres of McWhorter's 3,000-ac. farm ..... Abd. 5,610 ft.

L. C. Thorpe's No. 1 Sutherland, 2,450 ft. E line, 350 ft. N line of C. McRay Sur. ..... T.D. 1,800 ft.; standing.

Stanolind O. & G. Co.'s No. 1 Theis, J. H. Edwards Sur., 466 ft. W line, 466 ft. S line ..... Drlg. shale 3,927 ft.

ORANGE COUNTY

Texas Louisiana Oil Co.'s No. 1 Starks, 2,450 ft. N of NW cor. M. Delano Sur. 68, 10,500 ft. E at right angles ..... Rigging.

POLK COUNTY

D. B. McCall's No. 1 Faulkner, 350 ft. W of center of E line of 200-ac. tract, G. B. Dikes Sur. ..... Stancing 60 ft.

Dick Schwab's No. 1 Kirby & West, Geraldus Thomas Sur., 1,000 ft. N of N line of P. A. Sublett Sur., and 3,000 ft. W of E line of Thomas Sur. ..... Sand showing gas 4,711-71 ft.

C. E. Stewart's No. 1 Stephenson, E. Stevenson Sur. (Abst. 761), 1,633 ft. from N line, 920 ft. from W line of 217 acres ..... Rig.

REFUGIO COUNTY

C. B. Bunte et al's No. 1 F. B. Rooke, J. M. Aldritte Sur., CWL of Sec. 4 ..... Derrick.

Humble O. & R. Co.'s No. 9 O'Connor, 4,380 ft. SW of No. 1 O'Connor ..... Drlg. shale 2,610 ft.

Texas Co.'s No. 1 Rooke, J. M. Aldritte Sur., 7,500 ft. S 53 deg. W, 850 ft. 37 deg. W of N cor. Sur. .... Drlg. shale 3,554 ft.

VICTORIA COUNTY

J. F. Camp's No. 1 Maurer, 330 ft. NE cor. Maurer's 178 acres, R. Manchola Sur. ..... Rigging.

Stoneleigh O. & G. Co.'s No. 1 Dietzel, 330 ft. out of NW cor. of Dietzel's 95-ac. tract, R. Manchola Sur. Derrick.

Stoneleigh O. & G. Co.'s No. 2 E. B. Terrell, 330 ft. out of SE cor. of Terrell's 215-ac. tract, R. Manchola Sur. ..... Moving in derrick.

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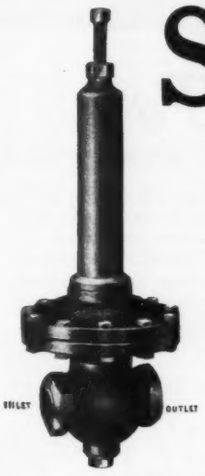

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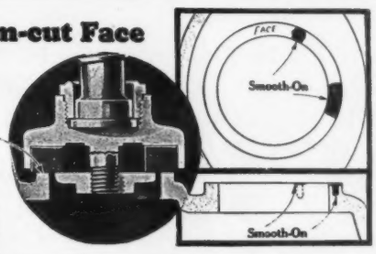

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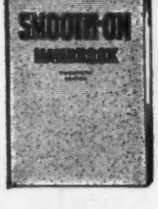

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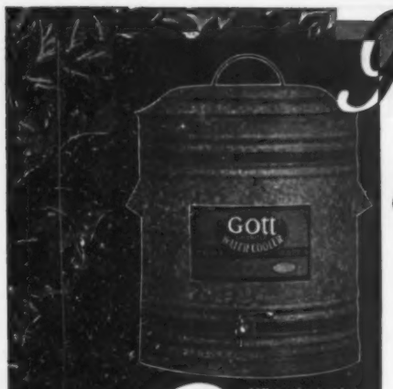

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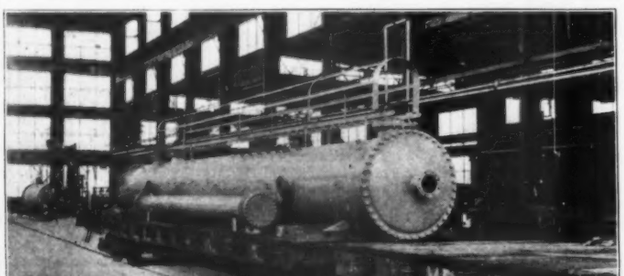

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Stoneleigh O. & G. Co.'s No. 1 Trybbie, 330 ft. out of SE cor. Trybbie's 122-ac. tract, R. Manchola Sur. ..Moving in derrick.
Stoneleigh O. & G. Co.'s No. 1 Zimmer, R. Manchola Sur., 1,007 ft. SW line, 645 ft. SE line .....T.D. 2,884 ft.; 7-in. csg. cmtd. 2,850 ft.; sand 2,850-84 ft.; tested S.W.; preparing to D.D.
The Texas Co.'s No. 6-A McFaddin, 5,600 ft. from NE line, 250 ft. from SE line of A. J. Gray .....Gas sand 3,039-49 ft.; pumping wtr. and mud into sand to kill pressure.
The Texas Co.'s No. 7 McFaddin, 6,600 ft. S 15 deg. W, 450 ft. N 75 deg. W at right angles from the NE cor. of the A. J. Gray Sur. .....T.D. 1,176 ft; blowing gas and mud.

WALLER COUNTY

Hobson & Moore's No. 1 Peters, Justo Liendo Sur., 590 ft. W of creek and 1,144 ft. N of S cor. .....Shale 2,960 ft.; washing to bottom.

WASHINGTON COUNTY

George W. Strake's No. 1 Henry Wehmeyer, M. Byrd Sur., 3,000 ft. from W line, 500 ft. from N line of 599.50-ac. tract .....Drlg. shale 5,025 ft.

WHARTON COUNTY

Boggs & Hammond's No. 1 C. T. Kountze, Morris & Cummings Sur., 1,250 ft. S line, 2,750 ft. E line ....Shale 4,800 ft.; washing to bottom.
Monarch Oil Co.'s No. 1 Schateck, 150 ft. each way out of SW cor. G. W. Reynolds Sur. .....Derrick.
Nabers et al's No. 1 Lurker, 210 ft. out of SE cor. of N½ SW Sec. 58, E.T.R.R. Sur. .....Washing to bottom 5,026 ft.
Pure Oil Co.'s No. 1 W. Garrett, Sec. 28, 4,456 ft. SE, 1,690 ft. NE of W cor. .....Drlg. shale 6,181 ft.
Pure Oil Co.'s No. 1 A. J. Wilder, T. W. Hurd Sur., 505, 2,575 ft. SE, 1,690 ft. NE from W cor. of Sec. 28. Drlg. sand and shale 5,585 ft.
Pure Oil Co.'s No. 1 Stewart, 2,415 ft. NW, 1,650 ft. NE of S cor. of Sec. 25, Morris & Cummings Sur. .....T.D. 8,067 ft.; cmtd. back to sand 5,963-71 ft.; setting screen at 6,024 ft.
Pure Oil Co.'s No. 1 Chas. T. Kuntze, 2,183 ft. from NW line, 467 ft. from SW line, Sec. 27, Morris & Cummings Sur. .....Fishing 7,134 ft.; a show at 7,128-34 ft.
Pure Oil Co.'s No. 1 W. H. Lancaster, Morris & Cummings Sur., Sec. 23, 1,650 ft. NW, 1,600 ft. SW of E cor. of section .....Shale 4,956 ft.; reaming to straighten hole.
Pure Oil Co.'s No. 1 Willis McIntyre, 1,650 ft. S of N line, 1,759 ft. S of E line of section .....Drlg. gumbo 1,300 ft.
Pure Oil Co.'s No. 1 Wallace Houston, 558 ft. SE of NW line and 1,690 ft. NE of SW line, Sec. 28, (T. W. Heard Sur.) .....Drlg. shale 4,630 ft.
Pure Oil Co.'s No. 1 Isaac Weaver, J. M. Brownson Sur., Sec. 22, 1,650 ft. out of N cor. of section ....Drlg. shale 6,080 ft.
Smith, McDannald and Pure Oil Co.'s No. 1 B. M. Yeamans, 330 ft. out of N cor. of B. M. Yeamans Sur., Abst. 913 .....Fishing 6,110 ft.
Smith & McDannald and Shell Pet. Corp.'s No. 1 Ridgeway, 1,980 ft. from S, 660 ft. from W of NE cor. Sec. 8, H.&T.C. Sur. .....T.D. 7,607 ft.; drill pipe stuck; reset whipstock 5,632 ft.; drlg. new hole 6,231 ft.

Wildcat Operations in Louisiana-Arkansas

(Continued from Page 68)

Helena O. & G. Co.'s No. 1 E. K. Harris, 990 ft. S and W, C Sec. 10-9-13 .....Derrick.
Mamie S. Hammond's No. 1 Patrick, 330 ft. N, 2,310 ft. W, SE cor. Sec. 1-9-13 .....T.A. 3,235 ft.
H. C. Lessinger's No. 1 Bowman-Hicks Lbr. Co., 338 ft. S and E, NW cor. SW Sec. 13-9-13 .....Blew out; gas and S.W. killed, but stuck D.S. 7 ft. off bottom; T.D. 3,285 ft.
C. L. Nixon's No. 1 Patrick, 330 ft. S and E, NW cor. NE SW Sec. 21-9-13 .....W.O.S.R. 1,600 ft.
Sabine Royalties Co.'s No. 1 Balew & Carter, 330 ft. N and E, SW cor. NW SW Sec. 21-9-13 .....Tested dry; W.O. 2,008 ft.
J. E. Sedbury's No. 1 E. K. Harris, 990 ft. W, 330 ft. S, C Sec. 10-9-13 .....Derrick.
Wm. Stewart et al's No. 1 Latham, 330 ft. N and E, SW cor. NW NE Sec. 22-9-13 .....Drlg. 1,050 ft.
Homer Tyson's No. 1 G. W. Hough, 330 ft. S and E, NW cor. SW NW Sec. 31-9-13 .....S.D. 40 ft.
Windsor O. & G. Co.'s No. 1 Barr, 330 ft. E, 990 ft. N, SW cor. NW Sec. 15-9-13 .....Used acid; making 75 bbls. oil.
Windsor Oil Co.'s No. 2 Barr, 330 ft. N and E, SW cor. NW Sec. 15-9-13 .....Location.

Arkansas

COLUMBIA COUNTY

C. W. Alworth et al's No. 1 W. D. King, SW cor. SE SW Sec. 16-17-20 .....Tested show of dead oil 1,871 ft; W.O.

JEFFERSON COUNTY

J. E. Elliott's No. 1 B. V. Nevin, 440 ft. N and E, SW cor. SW NW Sec. 26-4-10 .....Derrick.

HEMPSTEAD COUNTY

Kentucky O. & G. Co.'s No. 1 Leslie, NW cor. SW NW Sec. 21-9-26 .....Derrick.

LONOKE COUNTY

Joe D. Strahan's No. 1 Hardin, 300 ft. S and E, NW cor. NW NW Sec. 18-2s-7 .....Rigged up and W.O.

MILLER COUNTY

Duluth-Ark. Oil Co.'s No. 2 Beck, 330 ft. S and E, NW cor. SE SW Sec. 34-15-26 .....S.D. 2,812 ft.

OUACHITA COUNTY

I. D. Reynolds' No. 1 Snow Hill Baptist Church, 525 ft. E, 115 ft. S, NW cor. SE SW Sec. 28-15-15.....Set 6-in. 1,960 ft.; T.D. 1,969 ft.

POINSETT COUNTY

Ark. State O. & G. Co.'s No. 1 fee, C NE NE Sec. 13-11-3e .....Derrick.

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HOUSTON, TEXAS

UNION COUNTY

Chas. Steele's No. 1 J. B. Combs, 150 ft. N, 185 ft. W, SE cor. SW NW Sec. 25-18-16 ..... Derrick.

WOODRUFF COUNTY

John Wadkins' No. 1 Rosser, Sec. 7-5n-2w ..... Began drlg. Sept. 2; cmtd. 10-in. 40 ft.; S.D. 1,300 ft.

Mississippi

JONES COUNTY

Snow-Black Pet. Co.'s No. 1 Watson, 600 ft. W, 210 ft. S, center, Sec. 24-7-13 ..... Dlg. 4,387 ft.

LAMAR COUNTY

Lamar Oil Co.'s No. 1 Scott, NE NE Sec. 18-2n-14..... Set 5 3/16-in. 3,010 ft.

MADISON COUNTY

H. A. Wilson,tr.'s No. 1 Copex, 200 ft. N and E, SW cor. SW NE Sec. 24-9-3e ..... Drlg. 1,420 ft.

NEWTON COUNTY

Bob Dalton et al's No. 2 Majura, SE SE Sec. 25-6-11 . Drlg. 2,287 ft.

RANKIN COUNTY

Hill Bros. and Cleve Love's No. 1 Lancaster, C SW NW Sec. 27-5-5e ..... Derrick.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, Sec. 24-2n-9e, SW cor. SW SE ..... Derrick pattern.

WARREN COUNTY

Orbet Drlg. Co.'s No. 1 R. L. Parker, 300 ft. E, CWL, Sec. 14-14-1e ..... Rig up.

Louisiana-Arkansas Proven Areas

North Louisiana

BOSSIER PARISH

Company, well, farm name, section and block—	Remarks:
United Gas Public Service Co.'s No. 3 Skannel, Sec. 14-19-14	O.W.D.D.; rig up; old T.D. 877 ft.

CADDO—BETHANY

Tom Collins Pet. Co.'s No. 1 Gill & Lipscomb, 660 ft. N, 1,806 ft. E, SW cor. Sec. 17-16-14 ..... Derrick.

CADDO PARISH—BETHANY

Calnat O. & G. Co.'s No. 1 Taylor, SW SE Sec. 34-17-16. Drlg. 1,612 ft.

Dillingham et al's No. 1 Eady est., 660 ft. S and W, NE cor. SE NE Sec. 33-16-16 ..... Moving in rig.

CADDO—HOSSTON

C. D. Whittaker et al's No. 2 Barker, 1,150 ft. N, 1,900 ft. E, SW cor. Sec. 21-22-15 ..... Rig up.

CADDO—RODESSA

Ark. La. P. L. Co.'s No. 1 Williams & Windham, Sec. 4-22-16, 660 ft. S, 660 ft. E, NW cor. NE NW ..... Coring lime 6,597 ft.

United Gas Public Service Co.'s No. 1 Festervan, Sec. 33-23-16, 1,980 ft. N, 1,320 ft. E, SW cor. ..... Comp. Oct. 1; 41,000,000 ft. gas; rock pressure 2,280 lbs.; T.D. 5,752 ft.

DE SOTO PARISH

Tom McKinney et al's No. 1 J. M. Nabors, 330 ft. N and E, SW cor. SE SE Sec. 26-13-12 ..... Rig up.

OUACHITA PARISH

Century Carbon Co.'s No. 3 Stoughter, 1,980 ft. E. C Sec. 24-19-4 ..... W.O. 2,205 ft.

RICHLAND PARISH

J. C. Prine's No. 1 Boughton, 1,360 ft. N, 1,920 ft. W, C Sec. 4-15-6 ..... Cmtd. 6-in. 2,300 ft.

United Carbon Co.'s No. 1 J. A. Noe, 1,320 ft. S, 660 ft. E, C Sec. 14-17-5 ..... Dlg. 2,362 ft.

SABINE PARISH—ZWOLLE

D. D. Alexander's No. 2 Cooper, 660 ft. S, 330 ft. W, NE cor. NW NE Sec. 31-8-11 ..... W.O.S.R. 2,343 ft.

Baird Bros.' No. 1 Trammell, 600 ft. N, 330 ft. W, SE cor. NE Sec. 30-8-11 ..... W.O.S.R. 2,606 ft.

Baird & Reed's No. 1 Dew, 330 ft. N, 210 ft. E, SW cor. SW SE Sec. 22-8-11 ..... Set 6-in. 2,380 ft.

J. C. Chandler's No. 1 Rains, SW cor. NW Sec. 14-7-11 Repairing rig.

Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12 ..... Derrick.

Investors Prod. Co.'s No. 1 S. J. Williams, 600 ft. E and S, NW cor. Sec. 24-7-11 ..... Arranging cut csg. 2,300 ft.; T.D. 2,805 ft.

T. E. Kelly's No. 1 McClanahan, 1,000 ft. S, 330 ft. E, NW cor. SW NW Sec. 36-8-11 ..... Drlg. chalk. 2,520 ft.

Magnolia Pet. Co.'s No. 2 J. M. Cook, 330 ft. S, 320 ft. W, NE cor. NE SW Sec. 30-8-11 ..... Comp. Sept. 28; pumping 30 bbls.

Pelican Nat. Gas Co.'s No. 21 La. Long Leaf Lbr. Co., 660 ft. N, 568 ft. W, SE cor. SE SW Sec. 3-7-11..... Dry; W.O. 2,700 ft.

Pelican Nat. Gas Co.'s No. 22 La. Long Leaf Lbr. Co., 330 ft. S and E, NW cor. SW NE Sec. 3-7-11..... Comp. Sept. 28; flowing and pumping 68 bbls.

Pelican Nat. Gas Co.'s No. 24 La. Long Leaf Lbr. Co., 330 ft. N and E, SW cor. Sec. 5-7-11..... Bailed dry; W.O. 2,750 ft.

H. C. Pitts' No. 1 Trammell 330 ft. N and E, SW cor. NW NE Sec. 5-7-11 ..... Derrick.

Pugh-Hickman Drlg. Co.'s No. 9 Stille, Sec. 16-7-11, 330 ft. S and E, NW cor. SE NW ..... Set 6-in. with packer 2,416 ft.

People's O. & G. Co.'s No. 1 Raines, 330 ft. N, 100 ft. W, SE cor. NE Sec. 15-7-11 ..... Drlg. 360 ft.

H. Reeves et al's No. 1 Ponder, 330 ft. N and W, SE NW Sec. 15-7-11 ..... W.O. 2,675 ft.

Rig Oil Co.'s No. 1 Walden, 330 ft. N and E, SW cor. NW NE Sec. 28-8-11 ..... Derrick.

C. T. Ruffin's No. 1 McNeely, 510 ft. S, 330 ft. W, NE cor. NE NE Sec. 7-7-11 ..... Drlg. 1,900 ft.

L. J. Tillery's No. 1 Sabine Lbr. Co., 800 ft. S, 220 ft W, NE cor. Lot 3, La. Nava grant. Sec. 5-7-11..... Rigging up.

C. H. Tuttle's No. 4 Byrd, 800 ft. S, 930 ft. E, NW cor. NW NW Sec. 7-7-10 ..... Rigging up.

Arkansas

UNION COUNTY—URBANA

E. R. Henderson's No. 1 J. A. Patterson, 300 ft. N and W, SE cor. SE NW Sec. 19-18-14 ..... Began drlg. Sept. 20; 12½-in. 109 ft.; fishing for bit; T.D. 1,265 ft.

Mississippi

HINDS COUNTY

Hensley & Tanner's No. 1 Hudson, 1,300 ft. N, 1,500 ft. W, SE cor. Sec. 11-5-1e ..... Drlg. 1,612 ft.

Love & Lancaster's No. 2 Elton plantation, NE Sec. 9-4-1e ..... Derrick.

Meredith Trading Co.'s No. 1 Nelson et al, 630 ft. E, 330 ft. S, NW cor. SW SE Sec. 24-6-1e ..... Derrick.

United Gas Public Service Co.'s No. 1-C McLaurin, Sec. 19-6-2e, C SE ..... Drlg. 2,731 ft.

RANKIN COUNTY

Ferguson, Fuller & Metz' No. 1 Ammons, 350 ft. E and S, NW cor. NW NW Sec. 35-3n-3e ..... Rigged up.

Love Pet. Co.'s No. 2 fee, Sec. 31-6-2e, 335 ft. N, 25 ft. E of SW cor. ..... Cmtd. 10-in. 719 ft.

Cleve Love et al's No. 1 Thomas, SW Sec. 10-4-1e..... Derrick.

Muse & Muse's No. 1 Carlton, Sec. 13-5n-1e, 650 ft. E, 725 ft. N, SW cor. ..... Cmtd. 6-in. 3,407 ft.

EAST TEXAS (Border Counties)

MARION COUNTY

Perry et al's No. 1 E. B. Colgin, 300 ft. N and E, SW cor. Martin Noll Sur. ..... Set 10-in. 50 ft; S.D. 1,400 ft.

PANOLA COUNTY

W. H. Nichols et al's No. 1 S. W. Ray, 330 ft. S of N line, 330 ft. W of E line, W. P. Culver Sur. ..... Drlg. 420 ft.

M. H. Robbins et al's No. 1 Alsee Williams, 165 ft. N and E, SW cor. 30-ac. tract in Winnie Mann Sur. . Rigging up.

C. R. Obermeyer et al's No. 1 T. J. Wooten, P. Martin Sur. ..... Drlg. 360 ft.

Canadian Fields

(Continued from Page 72)

SE SE Lot 25, Concession 2, Dawn Township, in the west end of the field.

Farther south, Luke Smith has a light rig drilling a shallow test for oil in Lot 11, Concession 1, Dawn Township, which around 6 0 feet bailed about 3 bbls. of a good grade of crude. The hole is deepening around 700 feet.

British Petroleum Co.'s No. 1, Lot 22, Concession 9, Plympton Township, near Aberarder, is reported drilling below 300 feet.

Kent County Tests

In Kent County, Ontario, Olga Oil & Gas Co.'s No. 7, Earl Flook farm, Lot 19, Concession 8, Raleigh Township, is reported abandoned at 1,635 feet, after getting a small show of gas, around 8,000 feet a day. This test offset F. H. Stover & Son's No. 1 Earl Flook, drilled last year, which got a good show of high-grade crude.

In the old Tilbury Field, Salina Oil & Gas Co.'s No. 4, Gifford farm, is reported good for 100,000 to 125,000 feet settled gas production following a shot. The outfit is being moved for Salina's No. 5, Roy N. Seal farm, almost due east across the road, in NW part Lot 9, Concession 13, Tilbury East.

In the Dover Field, Kent County, Raleigh Development Syndicate's No. 1, Stephens farm, Lot 2, Front Concession, Dover Township, is shut in after running 2-inch pumping tubing. It has an estimated production of 30 to 40 bbls. a day from the Trenton limestone at around 3,200 feet, with some gas.

In Essex County, Bon Jasperson's No. 1, Lot 14, Concession 2, Maidstone Township, is reported drilling a little below 2,025 feet in a blue lime which appears to be the top of the Trenton.

Haldimand-Norfolk Fields

In Norfolk County, Midwal Oil & Gas Co.'s No. 5 has been brought into production with an estimated initial flow of 150,000 to 200,000 feet a day. It is southwest of Delhi. Henry Woodhouse is president and W. W. Wallace vice president. Five wells have been drilled for the company this year in the Delhi district, of which one finished dry while No. 3 was reported good for 250,000 feet a day and the others were smaller gassers.

In Haldimand County, Standard Syndicate of Toronto has two wells in Lot 24, Concession 5, Walpole Township. No. 1 got a production of 35,000 feet a day and No. 2 is drilling. Culver Syndicate drilling in Oneida Township finished No. 1 in Lot 14, Concession 3, as a dry hole. No. 2 in Lot 58, Concession 1, Oneida Township, was good for 20,000 feet a day and No. 3 in the same lot finished with 25,000 feet a day.

W. C. Patterson's No. 1 in Lot 8, Concession 2, Dunn Township, showed 114,000 feet a day. Patterson's No. 2, Lot 13, Concession 8, Walpole Township, is good for 342,000 feet a day. Broadway Co.'s No. 1 in Lot 21, Concession 6, Walpole Township, has a flow of 160,000 feet a day; and No. 2, same lot, is good for 230,0000 feet.

Walpole Syndicate has drilled two wells in Lot 15, Concession 7, Walpole Township. No. 1 was good for 60,000 feet a day and No. 2 yielded 30,000 feet. No. 3, in Lot 17, Concession 4, Walpole Township, finished dry. Operations of the syndicate are being backed by the Continental Gas Corp. of Toronto. Holmes Syndicate's No. 1 in Lot 24, Concession 8, Walpole Township, finished dry.

Petrolia Acid Tests

It is reported that acid treatment of old producing wells in the Petrolia Field, Lambton County, is still being carried on, though the results so far have not been very satisfactory. Treatment of the older wells in the center of the field has yielded practically no results. In outlying sections, where there is still some gas pressure behind the oil, some slight improvement in production has been reported, indicating treatment gets better results where gas pressure keeps the sand from being clogged and thus enables the acid to enter the sand.

Clean Out and INCREASE PRODUCTION

with a

MILLER SAND PUMP

The MILLER SAND PUMP equipped with a Chisel Bottom (illustrated below) will break up the sediment and cavings by dropping it a few times in the well.

The enormous suction thus created by the plunger traveling upward in the tube, will pick up a load of sand and mud that a common bailer cannot possibly pick up.

In the Miller the wire line goes through the bail permitting use of a 25-foot pump to be used on the average machine.

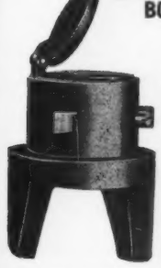
STAR BOTTOM

used for cutting th sand loose.

Cutting edges of the Chisel and Star Bottoms are covered with STELLITE. The bottom bushing and bail are BOTH riveted and welded to the tube.

SAND PUMP BOTTOM

used when tools are run and when well is shot to quickly remove loose material.



With the Bailer Bottom installed the Miller is changed to a bailer giving you a combination of either a bailer or a sand pump in one tool.

BAILER BOTTOM

will speed up production in cavy holes by time saved in picking up cuttings.

Made in 2½, 3, 3½, 4, 4½, 5, 5½, 7 and 9-in. sizes with 20, 25 and 30-foot lengths.

CHISEL BOTTOM

NRA

FOR SALE AT ALL LEADING SUPPLY HOUSES

Write For Folder and New Prices.

MILLER *Sand Pump Co.*

General Offices and Plant:
SAPULPA, OKLAHOMA, U. S. A.

PERSONAL PARAGRAPHS

R. A. JOSEY, independent operator of Houston, Tex., is spending a vacation in Los Angeles, Calif.

* * *

HUGH AIKMAN, secretary of J. H. Williams & Company, Buffalo, N. Y., has been made advertising manager.

* * *

O. C. STAPLES, of the Frick-Reid Supply Corporation, and family have returned from a vacation trip to Chicago.

* * *

FRED LEIDECKER, of Dallas, Tex., will enter business with his son who has producing properties in Ward County, Texas.

* * *

J. L. SHAKELY, vice president, Frick-Reid Supply Corporation, is on a business and pleasure trip to Pittsburgh and Wayne, Pa.

* * *

T. J. DONOGHUE, executive vice president of the Texas Company, Houston, Tex., has returned from a trip to New York and the East.

* * *

C. S. McGEE, formerly with the old Prairie Oil & Gas Company, is now an assistant to the state oil umpire of Kansas, with headquarters at Wichita.

* * *

H. W. PONTIUS, formerly with the Continental Oil Company, McCamey, Tex., is now with the Department of the Interior, with headquarters in Tyler, Tex.

* * *

E. L. SHEA, president of the Tide Water Oil Company, of New York, is inspecting the company's properties in the Conroe Field and is visiting in Houston, Tex.

* * *

N. M. GROVE, district representative of the Republic Rubber Company, returned during the latter part of September from a trip visiting various eastern points and Chicago.

* * *

O. J. TUTTLE, sales manager for the Empire Oil & Refining Company in Tulsa, was forced to spend several days at home during the past week to recover from a cold.

* * *

MRS. FANNY EDSON, of the Shell Petroleum Corporation, Tulsa, was in Dallas, Tex., during the week attending a meeting of the research committee of the American Association of Petroleum Geologists.

* * *

GLEN HENDERSON, formerly district manager for D. & B. Pump & Supply Company at Taft, Calif., has joined the southern California sales staff of the Pacific Pump Works, oil well pump division.

* * *

H. C. WIESS, vice president and director of the Humble Oil & Refining Company, Houston, Tex., accompanied by his family, has returned from a vacation trip to White Sulphur Springs, Va., and New York City.

* * *

JOHN P. PHILLIPS, superintendent at the Maud, Okla., gasoline plant of the Empire Oil & Refining Company, has returned from a two weeks' period of training at Fort McClellan, Alabama. He holds a captaincy in the Officers Reserve Corps.

* * *

IRVING WOODSON, of San Marcos, Tex., has left for New York City where he will embark for Ankara, Turkey. Mr. Woodson, who received his degree at the University of Texas in June, will serve as a geologist for the Turkish government.

* * *

D. T. PARKER, with the Standard Oil Company of Venezuela, with headquarters at Caprito, is on vacation in the United States. His first stop was at Fort Worth, Tex., where he hastened to marry Miss Gladys Lindsey, secretary to A. M. McCorkle, vice president of the Stanolind Oil & Gas Company, in that city.

ARCH HYDEN, purchasing agent, Minnehoma Oil Company, has returned to Tulsa from a business trip to California.

* * *

J. S. COSDEN AND W. D. RICHARDSON, recently flew from Fort Worth, Tex., to Big Spring, where they inspected Cosden properties.

* * *

N. W. BOSTON, land man for the Tide Water Oil Company, at Houston, Tex., has been transferred to the company's office at Palestine, Tex.

* * *

CHARLES FAHY, first assistant solicitor for the Department of the Interior, who defended President Roosevelt's orders on the shipment of illegal oil and the checking of East Texas refinery reports in the case brought by a group of East Texas refiners, has just completed a trip over the East Texas Field with A. D. Ryan, chief investigator.

Men of the Industry

J. H. DASTEEL
General Manager, Union Service Stations, Inc.

J. H. Dasteel, general manager of Union Service Stations, Inc., a subsidiary of the Union Oil Company of California, entered the employ of the latter organization as a general utility clerk in the San Francisco district sales office in February, 1913. He was studying law in the University of California at the time he decided to cast his lot with the oil business. In less than a year after entering the San Francisco sales office he was transferred to the newly formed San Jose district, remaining there until 1915, when he was sent to Oakland as district manager.

While in San Jose the young man resumed his law study, taking advantage of a night course in Santa Clara College, and in 1915 he was admitted to the California bar. While his practice of law has been largely of a personal nature, he has retained membership in the California Bar and American Bar Associations.

In 1928 Mr. Dasteel was transferred to the San Francisco district as manager and in the following year he was made district manager of the central division. In 1930 he was transferred to Los Angeles as district manager and he was advanced to the head office sales staff early in 1931. Upon organization of the Union Service Stations, Inc., in December, 1932, Mr. Dasteel was made general manager.

SHEP MEIERS, sales representative, Kerotest Manufacturing Company, Pittsburgh, Pa., has been spending some time in Tulsa, during the past two weeks.

* * *

A. C. EASTERWOOD, formerly scout for the Continental Oil Company at Amarillo, Tex., is now with the Cosden Oil Company at its refinery at Big Spring, Tex.

* * *

LOUIS DEUTSCH, supply salesman, has been placed in the East Texas Field as representative for the Happy Belting Company. Headquarters will be at Kilgore.

* * *

W. E. RAMSEY, of the Ramsey Petroleum Company, has returned to his home in Oklahoma City, Okla., from a trip to Salt Lake City, Utah, and Los Angeles, Calif.

* * *

E. A. SHOWERS, of Showers & Moncrief, independent operators, Houston, Tex., has returned from Chicago, where he spent a short vacation trip visiting the World's Fair.

* * *

MARVIN E. CROOM, of Dallas, Tex., has been appointed manager of the East Texas regional committee of the Texas Petroleum Council, with headquarters at Longview, Tex.

* * *

EVERETT MEADORS, scout for the Stanolind Crude Oil Purchasing Company, in the Wichita Falls, Tex., district, has been transferred to the Kansas fields with headquarters at Wichita.

* * *

W. L. CONNELLY, chairman of the board of the Sinclair Prairie Oil Company, and Horace Fitzpatrick, assistant to Mr. Connelly, both of Tulsa, are in Texas looking over properties of the company.

* * *

W. D. MOORER, president, Moorlane Company, left about the middle of September for two or three weeks' business trip in the East where he will visit a number of the factories of companies represented by his firm.

* * *

PAUL L. DAVIS, scout for the Shell Petroleum Corporation with headquarters at Lake Charles, La., was married last week at Athens, Tex., to Miss Mary Frank Farrell of Athens. They are spending their honeymoon in New Orleans, La.

* * *

RICHARD C. HALL, of the Texas Company, who has been an active member of the Fort Worth, Tex., Junior Chamber of Commerce for the past few years, has been named secretary-treasurer of the State Junior Chamber of Commerce of Texas.

* * *

J. ELMER THOMAS, who has been acting temporarily as special technical adviser on the Petroleum Administrative Board during its formative stages, has found himself unable to continue to devote his entire time to the work of the board and will return to his private work upon the completion of the matters for which he was engaged.

* * *

D. J. CAVANAUGH, secretary of the Pennzoil Company, Oil City, Pa., was honored on his sixty-fifth birthday by members of the Pennzoil organization who assembled at the Cavanaugh cottage at Oleopolis. Among those present was L. H. Johnson, president of the Pennzoil Company of California, who had just returned from Europe, and is one of Mr. Cavanaugh's particular friends.

* * *

JACK VICKERS, president of the Vickers Petroleum Company, has begun the construction on the Vickers estate near Wichita, of what will be the largest and finest private residence in Kansas. It will be constructed of native stone. The house will be 200 feet in length, by 40 feet in width, and two stories in height, not including the basement. Mr. and Mrs. Vickers expect to occupy the house within a year. They have six children.

DAVID BEACH, superintendent of the Michigan division of the Pure Oil Pipe Line Company, was in Chicago last week.

* * *

W. J. CHELEY, of Tulsa, president of the Zero Hour Torpedo Company, was in Casper, Wyo., conferring with E. J. Sullivan.

* * *

T. D. NISBET, formerly with Ferro Machine & Foundry Company of Cleveland, Ohio, is now sales manager for Erie Meter Systems, Inc., of Erie, Pa.

* * *

J. EDGAR PEW, vice president of the Sun Oil Company, with headquarters at Philadelphia, Pa., has been spending the past few weeks in Houston, Tex., making an inspection of the company's Gulf Coast properties.

* * *

WALTER W. TROUT is now assistant to the president of Lufkin Foundry & Machine Company and has moved from Tulsa to Lufkin, Tex. He was manager of the Tulsa office for seven years and has been succeeded by D. A. Reed.

* * *

JOHN C. MILLER, chief geologist of South Texas division, Texas Company, Houston, Tex., has been in Dallas on business.

* * *

WALTER L. McCLANAHAN, one of Michigan's leading operators, has returned to Mount Pleasant, Mich., after a short vacation.

* * *

MELBERT E. SCHWARZ, superintendent of the Rio Bravo Oil Company at Darrow, La., has resigned to accept a position as professor in petroleum engineering at the University of Texas, Austin.

* * *

H. HARPER McKEE, member of the firm of Brokaw, Dixon, Garner & McKee, consulting engineers and geologists, Houston, Tex., has removed to New York City, where he will make his headquarters.

* * *

FRANK W. KIRK, general manager of the Houston Pipe Line Company, Houston, Tex., has been selected as a member of the state relief commission which will be charged with the duty of administering the funds provided by a bond issue voted recently.

* * *

R. E. COLLOM has been transferred from the Ponca City, Okla., office to the Los Angeles, Calif., office of the department of exploration of the Continental Oil Company. His title will be vice president and manager in charge of exploration work on the Pacific Coast.

* * *

A. D. PATTERSON, of the Texas Company, has been made assistant division manager of the production department of the Southwest Texas division with headquarters in Houston. He has been in charge of the drilling and production in southern Louisiana, stationed at Houma.

* * *

TOM PETTY, geologist for the Humble Oil & Refining Company, Cisco, Tex., spoke to the research committee of the American Association of Petroleum Geologists in Dallas, October 5, on the treatment of lime wells with acid. M. G. Cheney, president of the Anzac Oil Company, Coleman, Tex., presided.

* * *

AUGUSTE L. BARIL, vice president of the International Union of the gas industry; Rene Seurot, chief engineer of the Paris Gas Company, and George Reclus, engineer of the same firm with their wives, and Marcel Bernard, manager of the Lisle Gas Company, left New York City Saturday, October 7, for France. They attended the recent International Gas Convention held in Ottawa, Canada.

O. C. THOMAS is now Tulsa salesman for the Murray Tool & Supply Company.

* * *

JOHN D. ROCKEFELLER, SR., is preparing to leave his New York home for Ormond Beach, Fla., for the winter.

* * *

WILLIAM C. WOLFE, formerly general manager of Highland Iron & Steel Company, is now vice president in charge of sales of Reading Iron Works.

* * *

CHARLES F. ROESER, of Roeser & Pendleton, Inc., of Fort Worth, Tex., and the Texas member of the Planning and Co-ordinating Committee of the oil code, spent most of last week at home after several weeks in Washington.

* * *

WILLIAM E. HOOPER, in charge of the Kellogg Engineering Company's installation work in the Rocky Mountain region, is at Memorial Hospital in Casper, Wyo., recovering from severe burns about the face and hands from a small gas explosion.

JOHN NASH, engineer with the minerals division, the Louisiana State Conservation Department, was in Chicago last week.

* * *

WARREN B. HEISEL, formerly with the Gulf Production Company and recently with the Phillips Petroleum Company at Bartlesville, Okla., has returned to the Gulf service with headquarters at Odessa, Tex.

* * *

ROY B. JONES, president and general manager of the Panhandle Refining Company and a past president of the Western Petroleum Refiners Association, has accepted for a second year the general chairmanship of the community chest of Wichita Falls, Tex.

* * *

C. O. DILLARD, F. V. ROBERTS, HARRY AURAND AND VERNON R. SHOUP, all of Denver, Colo., where in Casper, Wyo., last week. The first three were formerly connected with the Midwest Oil and Midwest Refinery Companies. Mr. Shoup is an independent operator.

* * *

EDWIN M. JONES, independent operator, San Antonio, Tex., has been a visitor in Houston, Tex.

* * *

UNDERWOOD NAZRO, vice president of the Gulf Production Company, has been in Pittsburgh, Pa., for an extended business trip.

* * *

HOMER A. NOBLE, consulting geologist, Houston, Tex., has accepted a position as geologist with the Magnolia Petroleum Company, effective October 15.

* * *

L. M. LUDWIG, of Toledo, Ohio, has been made general sales head of the Gulf Refining Company, in Toledo, as John Edwards who held the position has retired.

* * *

O. H. WHITE, formerly with the Dow Chemical Company, and with the State Conservation Department, has been employed by the Michigan Regulatory as a field gauger to work with A. J. Weideman, umpire.

* * *

H. K. V. TOMPKINS, recently general manager of the Pacific Western Oil Company of California, has been made manager of the newly established department of exploration of the Continental Oil Company with headquarters at Ponca City, Okla.

* * *

DR. MARCUS A. HANNA, chief paleontologist of the Gulf Production Company, was elected president of the Houston Geological Society at its annual meeting October 6. He succeeds John M. Vetter, chief geologist of the Rio Bravo Oil Company. W. F. Bowman, chief geologist of the Tide Water Oil Company, was elected vice president, succeeding Sidney A. Judson, vice president of the Texas Gulf Producing Company. John C. Miller, chief geologist of the South Texas division, Texas Company, was re-elected secretary-treasurer.

* * *

F. M. SURFACE, who has been assistant director of the Bureau of Foreign and Domestic Commerce of the Department of Commerce with headquarters in Washington, D. C., has been appointed director of the division of sales research for the Colonial Beacon Oil Company, Boston, Mass. The division was recently created by the Colonial company which is a domestic marketing subsidiary of the Standard Oil Company of New Jersey. R. R. Cunningham, formerly manager of the marketing development department of the Hudson Motor Car Company, also has joined the Colonial Beacon organization and will be in charge of sales promotion and sales training activities for the company.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

October 11, 1908

The Devonian Oil Co. extends the Glenn Pool into Township 18-12, northeast of Sapulpa, with a 500-bbl. well.

Dr. David T. Day, of the U. S. Geological Survey, and Dr. Leo Ubbelohde, secretary for the international commission for discovering a uniform method of testing oils, have been making a tour of the Louisiana, Texas and Oklahoma fields.

Governor Haskell, of Oklahoma, is fighting to have the 680,000-acre lease of the Indian Territory Illuminating Oil Co. in the Osage Nation cancelled.

The law firm of Wrightsman, Diggs & Bush, in Tulsa, has been dissolved, Judge Diggs withdrawing to pursue his profession alone, the two other partners continuing. All are prominent oil lawyers.

Ambrose Donoghue, of the Texas Co. in Tulsa, has been transferred to New York and has been succeeded by H. L. Stewart of Houston, Tex.

A cargo of 41,722 bbls. of Glenn Pool crude is on its way from Port Arthur, Tex., to the Nanboku oil refineries in Hirannuma in Japan. It is the first of a series of cargoes for which the Japanese company contracted with the Gulf Oil Corp.

20 Years Ago

October 16, 1913

F. H. Hillman has been promoted to be secretary of the Standard Oil Co. of California. His career with the Standard Oil Co. began in Bradford, Pa., as a telegraph operator with the National Transit Co. under W. W. Splane, superintendent of telegraph.

W. C. McBride is said to be the largest individual oil operator in the world. He makes his home in St. Louis as it is nearest to all his widely scattered operations in the Eastern fields, Illinois, Oklahoma, and Texas.

The will of the late Charles A. Canfield, California oil man, who discovered the Coalinga Field, was admitted to probate at Los Angeles. He left an estate of $6,000,000. Ten years ago he was a poor man.

The Union Natural Gas Corp.'s line from the West Virginia and Ohio gas field into Indiana is completed. It cost $3,000,000.

Sam C. Redd, Tulsa oil man, and Miss Jane T. Gourlay of Buffalo, N. Y., are united in marriage.

Howard S. Jones, secretary of the Iroquois Natural Gas Co. of Buffalo, N. Y., dies in Silver City, N. Mex., at the age of 27 years.

John McMillan, field superintendent for the Sun Oil Co., was instantly killed in an automobile accident in Toledo, Ohio, his home city.

A. A. Crawford, of Pittsburgh, Pa., is made superintendent of the Pennsylvania division of the United Natural Gas Co., with headquarters at Bradford, Pa.

10 Years Ago

October 11, 1923

Capt. H. Y. Arnold, who went to Port Arthur, Tex., in 1902 to manage the Gulf refinery, and who was sent to Tulsa in 1906 to organize the Gulf's interests in Oklahoma, dies in Tulsa, age 77 years. Captain Arnold was with the Mellon interests for nearly 30 years previous to his retirement in 1909.

The first International Petroleum Exposition and Congress, held in Tulsa from October 8 to 14, is proving a success beyond expectations. Many nations are represented at the congress and the exposition of oil and gas well supplies, and pipe line and refinery equipment is complete.

S. Nanumro, vice president of the Orange Petroleum Co. of Texas, has departed for Japan to search for his family whom he fears perished in the recent earthquake. K. Kishi, also of the Orange Petroleum Co., is alarmed over the fate of his brother, Dr. H. Kishi, who was visiting in Tokio.

E. W. Marland, president of the Marland Oil Co., favors stringent state laws for the conservation of oil underground and to prevent overproduction of new fields, which wrecks crude and refined markets.

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the questions is considered to be confidential.

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Solvent Methods for Preparing Lubricating Oils

Recently I heard of a method used in the manufacture of bright stock called the "Solvent Method." Will you enlighten me as to just what it is? Also, if you will tell me where I can get detailed information as to drawings, etc.?—R. T. G.

The original solvent method for the removal of objectionable materials from a petroleum oil was that of Edeleanu, announced about 1908, using liquid sulphur dioxide. This was first employed for the treatment of illuminating oils, but in recent years has been extended to lubricating oils. The operating temperature for kerosene is approximately 14° F., but may be somewhat higher, 25° to 32°, when processing lubricating stocks.

This process tends to improve the finished oil over the untreated product, as shown by higher hydrogen content, greater saturation, less sulphur, improved color, cleaner burning oil and less smoking. The lubricating oils have a better (flatter) viscosity curve, are less acid, show improvement in resistance to emulsification, produce less sludge, and are more resistant to oxidation.

During the last few years serious study has been given to selective solvent methods for the separation of wax from lubricating oil stocks. Studies of over a hundred solvents have been made by the Atlantic Refining Co., in their action on paraffinic and naphthenic fractions. The viscosity-gravity constant (V.G.C.) of the oils serves as an index of the degree of separation.

This is defined as meaning that the higher the A.P.I. gravity for a given viscosity the more paraffinic the oil. The term is further explained by Hill and Coats and the examples following are from their paper.

VISCOSITY-GRAVITY CONSTANTS, LUBE CUTS, VARIOUS CRUDES

Crude oil—	V.G.C. of cut
Sour Lake, Tex.	0 916
Heavy Mexican	.894
Sunset, Calif.	.885
Seminole, Okla.	.844
Salt Creek, Wyo.	.829
Burbank, Okla.	.828
Ranger, Tex.	.827
Milltown, Pa.	.890

Farris and Hangton, in their paper before the recent World Petroleum Congress at London, list the criteria of a good selection solvent.

1. Extreme paraffinicity of the raffinate.
2. Low volume required per volume of raffinate.
3. Ease of separation of the layers.
4. Ease of recovery.
5. Chemical inertness.
6. Variety of stock to which it may be applied.

Our process treats the wax distillate with a selective solvent consisting of a mixture of acetone and benzol cools the solution, removes the separated solid components, to yield a purified oil. Under this patent a crude petroleum may be distilled under reduced pressure to yield a wax-bearing fraction of boiling range from 400° to 620° F., which is warmed with a mixture of equal parts acetane and benzol, and the solution is stirred in a grainer and cooled to minus 5° F. This is passed through a plate filter to remove the wax, and the filtrate distilled to recover the solvent. The oil is treated with acide to remove sulphur, washed with alkali and contrifuged.

Another solvent process makes use of dichloroethyl ether, known under the trade name "Chlorex." This dissolves relatively small portions of lubricating oils having a high viscosity index, leaving a high viscosity index raffinate. Two Mid-Continent oils having viscosity indices 77.5 and 85 yielded with Chlorex 104 and 99.5 viscosity index, corresponding with the Pennsylvania type.

The high specific gravity of Chlorex, 1,222, permits rapid separation. The extraction is made in three stages under a temperature range of 30° to 80° F., and may be combined with acid treatment.

The reagent is recovered by distillation with steam.

Other solvent processes use either nitrobenze, phenol, alcohols, or the lighter hydrocarbon liquids. Articles describing these processes in detail have been published as follows:

"Treating Lubricating Oils With Sulphur Dioxide," by O. P. Cottrell, The Oil and Gas Journal, December 1, 1932, page 10.

"Solvent Investigations," Ferris, Birkhimer and Henderson, Ind. Eng. Chem. 23, 753, 1931.

"Nitrobenze Process" by Ferris and Houghton, The Oil and Gas Journal, November 17, 1932, page 65.

"Dichloroethyl Ether Process," by Page, Buchler and Diggs, The Oil and Gas Journal, April 20, 1933, page 14.

"Phenol as Selective Solvent," by Stratford, Moor and Pokorny, The Oil and Gas Journal, March 30, 1933, page 8.

"Use of Propane," by R. C. Conine, The Oil and Gas Journal, May 4, 1933, page 11.

Largest Still Is for Topping and Cracking

Can you tell me what is the largest still, based on the daily capacity, that has ever been built? Any details you may have on this will be of interest.—W. I. D.

It appears that the still completed for the Standard Oil Co. of Indiana, Whiting, Ind., about a year ago is the largest distilling unit that has ever been constructed and operated. This unit, following modern practice, is designed to first skim the crude oil and then crack the residue.

The still, which handles 20,000 bbls. of crude oil each day, is reported to show a yield of 70 per cent gasoline, when charging average Mid-Continent crude oil. The octane value of the gasoline is 70 or better.

At the retail price of 20 cents a gallon, including the tax, this still produces $117,600 worth of gasoline each day. The only other products made are gas and a high-grade fuel oil.

There was a description of this still in The Oil and Gas Journal, March 31, 1932, page 22.

Operating Conditions Control Yields by Cracking

Will you kindly show what is a reasonable quantity of products to be obtained from cracking?—W. H. M.

The yield to be obtained on cracking will vary with the kind of charging stock and the type of operation. Many units are now operated on the basis of a distillate charge, such as gas oil, or the residue from the topping operation. Also, the cracking process may be run to a liquid, fuel oil, residue, or to a solid coke residue. The percentage of products obtainable, especially gasoline, is related to the quality of the oil cracked, the conditions of operation, and the extent to which the combined distilling and cracking operation is carried.

A well known cracking process, running on a Mid-Continent topped crude oil and reducing to fuel oil, shows yields indicated in the table.

CRACKING TO FUEL OIL

Product—	Yield per cent
Gasoline	42
Gas oil	12
Fuel oil	36
Gas and loss	10

When the operation is conducted to reduce to coke there is an increase in the yield of gasoline, with this particular oil, equivalent to about 8 to 10 per cent more than when running to fuel oil. The relation of product yields is shown in the table.

CRACKING TO COKE

Product—	Yield per cent
Gasoline	59
Gas oil	14
Fuel oil	8
Coke	14
Gas and loss	14

The quantity of coke produced is usually reported in terms of pounds per barrel of the charging stock, and may run from approximately 36 to 74 pounds per barrel of oil cracked.

Preparation of Aluminum Chloride by McAfee Process

What is the function of aluminum chloride in refining and how is this substance made?—R. C. E.

The important use of aluminum chloride is as a catalyst in the cracking process, as practiced by the Gulf Refining Co., under the patents of A. M. McAfee, but the reagent is of value for improving color and odor, removal of sulphur and stabilizing distillates of the light oil group and the lubricating oils.

The process, as finally adopted, for making aluminum chloride has been described by McAfee on several occasions (see Ind. Eng. Chem. 21, 670, 1929; Trans. Amer. Inst. Chem. Eng. 22, 209, 1929), the essential steps being given as follows:

A bauxite fairly low in silica and iron oxide is calcined at about 1,800° F. in an internally heated rotary furnace, by which the free and combined water, about 40 per cent, is expelled. From the furnace the bauxite is conveyed to a weighing hopper in which it is mixed with coal, or petroleum coke, in the proportion of three of bauxite to one of coal. The mixture is pulverized, incorporated with a binder such as wax tailings or melted asphalt, and then briquetted under a pressure of 3,000 pounds per square inch. The briquettes are then heated to about 1,500° F. to completely carbonize the coal and the hot carbonized briquettes then go to the chlorination furnaces. The largest of these furnaces has a capacity of 40,000 pounds of aluminum chloride per day. It is of the shaft type, constructed of two courses of circular fire-brick, behind which is a layer of powdered bauxite encased by an iron jacket, the purpose of the bauxite being to protect the iron from any chlorine which may penetrate the firebrick courses. Near the top of the shaft furnace are inlets for the chlorine, and near the bottom, an outlet for the aluminum chloride, which is connected with a condenser. After charging the briquettes to the furnace a blast of air is turned on for about 15 minutes, which, by producing combustion of the coal, raises the internal temperature to about 1,600° F. Then the blast is stopped and chlorine, produced locally, is admitted and the contact maintained for a period of 8 to 10 hours, when it becomes necessary to replenish the furnace with briquettes and to restore the heat by the use of the air blast. The furnace is kept in continuous operation until the fire-brick lining requires renewal — about every 100 days. The aluminum chloride comes off as a vapor at the temperature employed and this vapor condenses to a solid without going through an intermediate liquid stage. Hence, special precautions are necessary to prevent stoppage of the apparatus by the solid chloride; the condensation is carried out in 16-inch vertical iron pipes provided with revolving shafts and blades which prevent the chloride from accumulating on the condenser walls and causes it to be delivered in powder form into receiving hoppers, from whence it is fed into iron drums. Although the vapors passing through the condenser are not free from hydrochloric acid, the thin coating of aluminum chloride on the walls protects the iron so that renewal is necessary at about two-year intervals.

NATURAL GAS DEVELOPMENTS

Texas Attorney General Seeks to Uphold Order

AUSTIN, Tex., Oct. 9.—Assistant Attorney General Elbert Hooper has filed suit against the Lone Star Gas Co. in the Fifty-third District Court of Travis County to enforce the order of the Railroad Commission reducing rates for natural gas at the gates of more than 250 cities, towns and communities. The purpose is not only to enforce the order of the commission but also to protect the jurisdiction granted the District Courts of Travis County to pass on the reasonableness of those orders.

The order fixing the rate was entered September 13. September 22 the company filed a bill of complaint in the Austin division of the U. S. District Court for the western district and obtained a temporary restraining order. The action since filed is to stay any further proceedings in the Federal District Court.

District Judge C. A. Wheeler signed an order staying enforcement of the commission's order pending a final determination of the suit filed in his court.

The state will file a motion to stay any further proceedings in the U. S. District Court when the case is called for hearing before three judges in the near future. If a stay order is granted the effect will be to allow the State District Court to determine the reasonableness of the rates prescribed by the commission.

A similar suit was filed by Hooper against the Public Service Corp. of Texas in connection with an order adopted by the Railroad Commission prescribing domestic gas rates in Perryton. Judge Wheeler issued a similar stay order in that case. The corporation, which is a distributing company, obtained an injunction from the Amarillo Federal Court September 9 restraining the commission's orders.

Taxes, Rate Reductions Stop Peoples Dividend

CHICAGO, Oct. 9.—Directors of Peoples Gas Light & Coke Co. have voted to omit the dividend due October 17. On July 17 the company paid $1, while in the four previous quarters $1.25 was paid.

One of the country's strongest operating public utilities, Peoples Gas, has been forced to suspend dividend payments because of increased taxes, the NRA code and rate reductions.

In a letter to stockholders James Simpson, chairman of the board, says:

"This action was taken for the reason that the company's current earnings are not sufficient to pay a dividend. Our gross revenue has been running substantially less than last year owing to reduced consumption of gas and to rate reductions effective July 1. Although some signs of improvement have recently been noticeable, no material effect of this has as yet been experienced.

"In addition, our operating expenses, due to reasons beyond the control of the directors or officers of the company, have been increased in many directions. Expenses over which we have control have been reduced by over $1,200,000 from January 1 to August 31 as compared with the corresponding period of last year. This reduction is fully up to our expectations but uncontrollable expenses, such as state, local and Federal taxes, interest, compliance with the NRA code and the imposition of the new 2 per cent Illinois retailers occupational tax (the so-called "Sales Tax") are substantially increased. Both the sales tax and the increases in state and local taxes are being contested by the company in the courts, but meantime it is obliged to establish reserves against them."

The company's dividend record goes back to 1894, in which year $6 was paid. In the following year $2.50 was paid and in 1896 $1, after which it was stepped up again to $6 and continued with various fluctuations to a high of $8 in 1914 and 1915. It subsequently receded to $3.50 in 1917 and then advanced to $8 in 1925. which rate was maintained through 1931. In 1932 $6.50 was paid.

Big Rapids, Mich., Votes Natural Gas Franchise

MUSKEGON, Mich., Oct. 7.—Big Rapids voters by 1,203 to 100 approved granting a new natural gas franchise to Taggart Brothers for the city supply. Taggart Brothers have two gas wells with an open flow capacity of about 4,000,000 feet a day each in Section 11, Austin Township, Mecosta County. They also have undeveloped holdings in this territory which will be drilled if necessary to provide the city with natural fuel. They already have obtained a permit from the Michigan Public Utilities Commission to lay a gas line to the city.

An effort of the Saginaw city council to revoke the agreement under which Consumers Power Co. is furnishing natural gas to the city was unsuccessful this week The council also voted down a motion to instruct City Attorney David E. McLaughlin to represent the people instead of the city's agreement when he appears in a taxpayer's suit recently started attacking the validity of the arrangement with the power company. Lower rates are sought by those seeking to revoke the agreement.

HELIUM EASILY LIQUEFIED

Using chunks of frozen air and liquid hydrogen somewhat as ice is used by ice cream freezers, Prof. Alexander Goetz, of the California Institute of Technology, has succeeded in liquefying helium—at a temperature less than 4 degrees from absolute zero. The wonder of his work does not lie in the achieving of liquid helium, for it has been liquefied by five other physicists. His ambition was to find an inexpensive method of producing temperatures wherein practically all gases can either be liquefied or frozen solid and studied in their various states.

SOUTHERN CALIFORNIA GAS LINE

Southern California Gas Co. is expected to begin work soon on two short pipe lines from Kettleman Hills to connect with the Los Angeles line following the filing of a contract in the office of the Kings County recorder at Hanford. One line about 4¼ miles in length will connect the gas line with the Standard Oil Co.'s absorption plant in Section 29-22-18, Kettleman Middle Dome, and the other line will be laid to connect the Huffman area in the North Dome to the gas line, a distance of 9,167 feet.

EDMONTON GAS RATES

EDMONTON, Alberta, Oct. 7.—Negotiations with regard to a possible revision of natural gas rates have been reopened between the city of Edmonton and Northwestern Utilities, Ltd., which supplies Edmonton from the Viking gas field.

Pipe Line Construction in Hebron, Pa., Gas Field

WELLSBORO, Pa., Oct. 7.—The new 8-inch pipe line from Sylvania, Potter County, Pennsylvania, to Betula, McKean County, is the first outlet from the Hebron, Potter County, gas field, opened two years ago and developed since by several producers, at a depth of about 5,000 feet. This line, constructed by the Sylvania Corporation, a subsidiary of the United Natural Gas Co., is about 30 miles in length.

At Betula the new line connects with the mains of the United Natural leading to the pump station at Halsey, 11 miles east of Kane, where gas will be pumped into lines leading to Buffalo. A measuring station is being constructed at Hebron which will reduce pressure.

Officials of the Lycoming Gas Corp. stated that 8 miles of the 38 miles of pipe line being laid from the Dolly Place well, Tioga County, to the Hebron Field, Potter County, has been completed. It is expected this line will be completed by December 1.

In the Tioga County gas field. the Penn United Gas Co.'s No. 1 Locey, Charleston Township, drilling at about 3,135 feet, has been free of the puffs of gas encountered at intervals in all of the dry holes drilled in this location. It is believed the Locey well will encounter the 1,000-foot lime within a few days.

Since the drilling of the 63,000,000-foot Schrack gasser in Potter County, activities have been uneventful. Tioga Natural is shut down on one of its wells and is below 3,300 feet on its No. 2 Emporium National Bank, in Shippen Township, Cameron County. Bayless Natural Gas is reported at 5,456 feet on the Franke, Eulalia Township, a Harrison anticline test. Hungiville has been running casing at 5,176 feet on the A. J. White, Hebron Township, and Hanley & Bird have drilled about 3,010 feet on the S. Gooch, Allegany Township. East Penn was reported below 700 feet on its No. 2 Emporium Lumber Co., in the East Ford district.

The seventeenth commercial producer in the Geneva, N. Y., natural gas field came in on the D. W. Parrish farm in Pre-emption Road, extending that field's limit. After hours of work drillers capped the well and gauged the gas at 18,000,000 feet.

The well is the second largest in the field. No. 2 Oscar Patrick in the Lyons Road topped it by 2,000,000 feet. That well was brought in during the summer.

EMPORIA PERMIT REFUSED

TOPEKA, Kans., Oct. 7.—The Kansas Corporation Commission has denied a rehearing of the Inland Pipe Line Co. case. The commission recently granted the company a certificate of convenience and necessity to build a gas line from the Reno County gas fields to Emporia and to serve intervening towns.

The American Pipe Line Co. and the Cities Service Gas Co., subsidiaries of the Cities Service Co., opposed the certificate and asked for a rehearing. Emporia is supplied natural gas by the Cities Service organization, although the local distributing plant is not owned by it.

MISSOURI GAS FIELD

PLATTSBURG, Mo., Oct. 7.—A new gas well, said to be one of the largest in Missouri, was opened this week on the farm of N. T. Porter, 2 miles northeast of Plattsburg. The open flow is 2,327,000 feet a day. It is 467 feet deep and the rock pressure is estimated at 141 pounds.

This is the second gas well to be opened on the Porter farm and the sixth in this gas field, all of them yielding an open flow of from 4,000,000 to 5,000,000 feet. Of the other wells, two are on the farm of George Hoover, one on the farm of Charles E. Jones and the other on Chris Vanderau's farm.

The Plattsburg Gas Service Co., allied with the General Utilities Co. of Kansas City, controls the output of this field and another field to the south of this town. Local operations are under the management of R. M. Hammond and Fred Hall.

Electrical Protection for Natural Gas Lines

At the annual meeting of the American Gas Association at Chicago Starr Thayer, electrolysis engineer of United Gas System, Houston, Tex., presented data in connection with the development and application of a practical method of electrical protection for pipe lines against soil corrosion. "Electrical protection of pipe lines as used here," Mr. Thayer said, "is based upon the theory that if a potential difference can be introduced upon a transmission line so that the potential of the pipe is sufficiently lower than that of the adjacent soil, the pipe will be protected from all corrosive agents. Experience in the laboratory and field tests indicates that three-tenths of a volt difference is sufficient to stop corrosion.

"In order to create this potential difference without an excess of power cost, it is necessary to have a line protected with a high resistance coating. It would not be practical to purchase the power necessary to introduce a potential of three-tenths of a volt on a bare line. Electrical protection can be applied economically and effectively to transmission lines having a high resistance coating, such as coal tar enamel, where such lines are found to need additional protection due to abrasions and imperfections in the coating."

The underlying theory is expressed thus: "Steel pipes are composed of iron, carbon and impurities. When these pipes are buried in the soil, the water and electrolytes in the soil act as a conductor whereby galvanic currents flow when short circuited, due to existing differences in electrical potential between various points on the pipe, and the pipe and the soil. Then, since pipe line corrosion as caused by these short and long line galvanic currents is most frequently encountered, it seems probable that such a condition could be mitigated from a practical standpoint for current to discharge from the surface of the pipe. Such a reduction of potential seemed possible and practical by imposing a current upon the pipe line through the soil by means of some outside source."

CANADIAN NATURAL GAS

CHATHAM, Ontario, Oct. 7.—Official figures issued at Ottawa show that the natural gas production from all Canadian fields in July was 1,002,429,000 feet, as against 1,131,376,000 feet in June and 981,700,000 feet in July, 1932. Imports of mixed (natural and artificial) gas amounted to 9,249,000 feet with a valuation of $6,734 in July, compared with 8,084,000 feet worth $6,121 in June.

PROHIBITION AFFECTS GAS

Experts reported at the American Gas Association convention that since many quit making home brew the gas business was off on a ratio of $1,760,000 a year. Part of it they will get back, the gas men said, because it takes gas to make pretzels, fry potato chips and make steins.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing or transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Hydrochloric Acid Not Likely to Be Effectual in These Wells

I want to find out whether hydrochloric acid could be used to advantage in cleaning out my wells in Caddo Parish, Louisiana. These wells had an initial production of 40 to over 100 bbls. a day when they were completed some 12 or 13 years ago. The production has dropped to as low as one barrel. The producing formation is about 6 feet thick and very compact and the depth averages around 2,300 feet. I have tried cleaning out with cable tools with no success whatever. How is hydrochloric acid used in such cases? How much should be used to a well? Will it injure the tubing? There are signs of salt-water corrosion on the tubing. —R. T. D.

Reference to a description of the producing formations of the Caddo Parish district of Louisiana indicates that this oil is found in the Woodbine sand and no method has been developed, according to available information, that will remove paraffin from the pore spaces of sand by the introduction of acid. Acid treatment of lime wells has proved satisfactory. Hydrochloric acid will dissolve the lime and open up new channels through which the oil and gas can escape to the well. Chemicals can be used to melt or dissolve paraffin from the face of a sand well but this does not answer your question.

You are probably faced with two problems in your wells. Because of their age natural depletion has occurred and there remain less oil and gas in the formation and consequently there is much less oil to recover. It is impossible to regenerate underground energy by chemical methods. Sands can be repressured by gas, air or water, but such methods require time and concerted action by owners of adjoining leases or the consolidation of properties under one management.

You mention salt water corrosion. This indicates the second problem that you have water accompanying the oil and leads to the conclusion that this water is washing sand into the hole. It is not practical to attempt to plug off this water because this would also tend to decrease the production of oil.

The fluid level in adjacent wells has much to do with the rate of water movement in the formation. Where the working barrels are set near the bottom of the hole and all fluid is pumped at about the rate of influx there will be a tendency to wash the sands of the oil and permit its recovery. However, such a method of production tends to increase the velocity of flow of the water through the sand and this will carry the fine sand into the hole.

To clean this sand from the hole it is necessary that the velocity of the up current in the flow string be greater than the velocity of the current in the bottom of the well. This does not mean that the volume moved is to be greater in the flow string than that moved into the well because under such a condition the well would pump off and production cease until the hole filled up again.

Any volume of fluid may be moved at varying velocities at different points in a system if the cross section of the flow pipe is changed to bring about the required conditions. It therefore follows that sand that is carried into the bottom of a well by the flow of the oil and water into the hole can be carried to the surface and delivered into a settling tank if the velocity of the up current in the flow string from well bottom to surface is slightly greater than the velocity of inflow into the well.

Small strings of tubing will sometimes accomplish this result. The carrying capacity of a stream of fluid either in a well or in surface streams is dependent upon its velocity. Fine sand does not require a high velocity current to move it and once it is in suspense it can be delivered to any desired point if this current velocity is maintained. If the current is permitted to diminish its speed of flow the sand will drop out and this is what has happened in your wells. The current flowing into the well has been of high enough velocity to bring the sand into the bottom of the hole but the up current in the flow string to the surface has been too slow to carry it out.

This suggestion does not contemplate cleanout work of any kind but rather an adjustment of pumping velocities to keep the sand flowing up the tubing at all times and thus keeping the bottom of the well clean. Acid treatment would do no good and the very fact that sand is being washed into the well indicates that additional pore space in the formation is being created constantly which should permit easier escape of oil to the wells.

It is suggested that the fluid level in all wells in an area be maintained at as near a common level as possible. This will prevent hydrostatic pressures from being set up between adjacent wells. If the fluid level in one well is 500 feet from the bottom and the salt water has a specific gravity of 1.15 this column of water will exert a pressure on the formation of about 250 pounds per square inch.

If adjacent wells have fluid columns only 100 feet high they would be working under hydrostatic pressures produced by these columns of water of about 50 pounds. The differential of pressures between the two wells will equal 200 pounds and this will cause higher rate of flow to the wells of lower pressure and the velocity of this flow, being relatively high, will tend to wash fine sands into the low-pressure wells.

The oil in the formation tends to float on top of the water. It therefore may follow that the wells with high fluid levels are skimming oil that might properly belong to adjacent leases. The low fluid level wells may be handling larger volumes of water and sand because of this difference between fluid levels in wells in the same areas.

This reference to fluid levels does not take into consideration formation pressures because at the time wells have reached a low production capacity it is quite probable that bottom hole pressures are relatively small. The problem for the production man is to produce his oil with the least amount of water. This can best be done if all wells have their working barrels set at relatively the same bottom hole positions and pump at such rates as to maintain practically the same fluid level throughout the formation.

Under such conditions the oil will be washed into the various wells in approximately equal quantities and the surging action produced by pumping will tend to clean the sand of its oil quite thoroughly. If the velocity of flow of the salt water through the sand is relatively low there will be less tendency to wash sand into the hole and this in itself will simplify the cleanout problems.

Why Was It Called That?

CONCRETE

Concrete, familiar as a building material in the oil field, gets its name from the Latin concretus, which in turn is made up of two Latin words meaning to grow together. Paris, France, will have a world exposition in 1937, at which one of the main attractions is to be a concrete tower 2,296 feet high. It will be the world's tallest structure. The present record holder is the Empire State Building, New York, 1,248 feet high. The Eiffel Tower, in Paris, is 984 feet high. The new Paris tower will have a ramp enabling motor cars to climb to a height of 1,640 feet, where a sun cure station is to be installed.

How Scientists Make Estimates Concerning the Earth's Age

In discussions of the various formations penetrated in oil-producing operations there are frequent references to divisions of geological time, such as Quaternary, Cretaceous, Carboniferous and so on. I would like to ask two questions in this connection. How is any one formation known to be older than another? I assume that the farther into the earth's crust you go, the older the formations penetrated, but I can see a possibility that this rule, if it is a rule, might not always work. Then I would like to ask how estimates of the age of the earth or of the layers comprising its crust are arrived at.—S. S. E.

You are right in your assumption that the relative ages of strata depend primarily upon the order in which they were deposited. Normally the older formations are beneath the younger. This simple rule provides the basis upon which the ages of the various strata are estimated. Folding and faulting may alter the position of certain formations, but not their age. The older the strata the harder they are as a rule. Grains of sand when cemented become sandstones. Shales become compressed and cemented to form slates. Jointing also becomes more pronounced in the older rocks.

It is of interest to point out in this connection that early geological study led to the belief that the folded layers of rock must have been in a soft state when the folding occurred. This belief was discarded with the widening of knowledge of structural geology.

Geological evidence indicates that the age of the earth must be reckoned in millions of years. One line of evidence may be illustrated as follows: There are in some places great accumulations of rock layers which were deposited in the ocean. These layers in some cases reach a depth of 40,000 feet. A study of these beds indicates that they were accumulated slowly, as similar beds of limestone, clay, sand and gravel are being accumulated in the sea now. If anything like the present rate prevailed the time required for the formation of some of these old beds was probably not less than 100,000,000 years.

A similar conclusion may be reached by studying the rate at which land wears away and mountains plane down. Another class of evidence is provided by a study of the fossils preserved in the rocks.

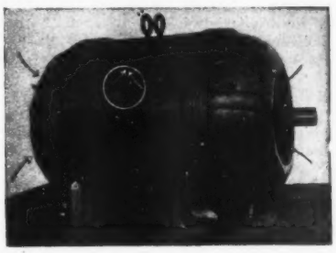
The age of the earth is estimated by physicists in several ways. One estimate is based on the rate of cooling of the heated interior of the earth. Another estimate is based on the effect of the tides in retarding the rotation of the earth by the friction of the tide wave. Still another line of calculation is based upon the rate of cooling of the sun, whose light, according to Lord Kelvin, will not last more than 5,000,000 or 6,000,000 years longer.

The facts concerning the earth's heat, the sun's heat and the earth's form, together with the rate of the cooling of the sun and the earth and the effect of tidal friction, led Lord Kelvin and other physicists to the conclusion that the age of the earth is not greater than 20,000,000 years. This estimate is too low to satisfy geologists, for the evidence from geology seems to point to a much greater age. The geologists are virtually unanimous in the belief that 100,000,000 years must have elapsed since the oldest stratified rocks were laid down.

NEW AND IMPROVED EQUIPMENT

Double Ventilation Aids Totally Enclosed Motors

Totally enclosed motors, such as those used in dusty, damp or hazardous locations, for years were much bigger and



more costly for their power than ordinary open motors because of difficulty in cooling them. Recently Westinghouse engineers perfected a scheme of ventilation which makes possible enclosed motors up to 200 horsepower with mounting dimensions comparable to open types. Internal and external air is circulated by fans through paths which cause rapid transfer of heat from the internal air to the frame and from the frame to the external air.

The frame contains two sets of ducts. The first set runs from one end of the frame to the other, inside the motor. The internal ventilating air is drawn by the internal fan through the air gap and rotor core vent holes, and is driven through the stator and turns and through the internal ducts over the stator core. When the motor is assembled the internal air is effectively sealed within the motor. The second set of ducts alternate with the first and pass from each end to the center of the motor. Double end ventilation is used on the larger machines. Since the ducts carry external air in close proximity to the internal air there is a heat exchanger effect. The internal fan on the rotor of the motor causes a continuous internal flow of air so that there are no dead air spaces and heat is continuously carried away from the electrical parts.

The motors are suitable for refineries, for agitators, hot oil pumps, gasoline pumps, centrifuges, gas boosters and other Class I Group D hazardous locations. The expense of fire walls can be saved. Steam engines with their long steam mains are not required. They may be used outdoors if desired as they are fully protected from the weather.

SMOKE DENSITY RECORDED

Photoelectric equipment for indicating and recording the density of smoke passing through stacks or breechings of power and heating plants has been announced by the General Electric Co. Changes in smoke density are indicated on a meter. A running record of the volume of smoke may be obtained by the addition of a recording instrument. The essential elements of the apparatus are a light source and a photoelectric relay unit. The recording instrument is optional. The photoelectric unit and the light source are designed for mounting on opposite sides of the stack so that the light beam from the light source passes through the stack and falls on the phototube. When there is no smoke in the stack the full intensity of the light is directed on the phototube and the indicating or recording instrument will register zero smoke density. As the smoke density increases, the phototube receives less light from the source and the instrument indicates or records the increase of smoke.

Among the Equipment Houses

Charles W. Steele, formerly president of the American Compressed Gas Co., has been made salesmanager of the "Rego" welding and cutting division of the Bastian-Blessing Co. M. H. Kauer has been made sales promotion and advertising manager.

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Appointment of C. F. Strover as salesmanager of the Pacific Pump Co. has been announced by G. E. Bigelow, general manager. Glenn Henderson, also well known in the pumping industry, has become associated with the sales organization.

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Directors of the General Electric X-Ray Corp., of Chicago, named John H. Clough president to succeed C. F. Samms, who became chairman of the board. Mr. Clough was formerly assistant to the president.

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The pipe-coating department of the Barrett Co. has been transferred from Chicago to the home office at 40 Rector Street, New York. George B. McComb will continue as sales manager with headquarters in the New York office.

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The Marshall Dill Co., Los Angeles and San Francisco, has been appointed selling agents for California by the Glyco Products Co., Inc., Bush Terminal, Brooklyn, N. Y. It will service the newer emulsifiers, synthetic resins and waxes and other specialties.

—

The General Paint Corp. has been made distributor of Barreled Sunlight products for Tulsa.

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R. S. McKeever, of the Smith Separator Co., Tulsa, Mid-Continent representative of the Fisher Governor Co., Marshalltown, Iowa, has returned from Marshalltown, where he made a detailed study of Fisher equipment.

Automatic Metering Device Called "Mechanical Brain"

A fully automatic device, the Brodie Quantrol, for measuring any liquid quantity from 1 to 1,000 gallons is announced by the Ralph N. Brodie Co. of 959 Sixty-

first Street, Oakland, Calif. In operation it performs as a "mechanical brain," shutting off the liquid flow after measuring out the desired quantity of fuel oil or gasoline without attention of the operator.

By the use of the Quantrol it is possible to load and meter any number of tank truck compartments simultaneously. It is said to have exceptional merit when used on "long hose" fuel oil deliveries where the driver must frequently be out of sight or too far away from the metering dials. The operator sets the Quantrol predetermining figures to the quantity to be measured. When this quantity has passed through the meter the Quantrol shuts off the flow automatically. It is attached at the outlet of the meter and is actuated by the operation of the meter. Bulletins describing the Quantrol may be obtained by writing to the manufacturers.

U. S. Union Affords Added Protection Against Leaks

A basic improvement of high pressure union design for steam, oil, gas, water and air lines, is featured in a new product, the U. S. Union, manufactured by the Mergenthaler Linotype Co. and distributed through its subsidiary, the United Superior Union Co. The new union is said to afford savings through longer life and added protection against leaks. It has two serrated ends, one hard and the other soft, which form four distinct seats.

The unions can be used several times, as a single "making-up" cannot spoil the four separate seats. They are made in black and cadmium-plated. Cadmium protective plating is offered as a distinct improvement. The union is machined first and then the cadmium is applied inside and out, giving lasting protection to all surfaces.

U. S. Unions are said to have been thoroughly tested in the public utility, petroleum, transportation and industrial fields and have given excellent service under all conditions, including installations where vibration or unusual variations of temperature and pressure existed.

NEW INDUSTRIAL TESTER

A new portable A.C. testing set, known as the industrial analyzer, suitable for testing industrial electrical appliances and motors up to 100-horsepower 440-volt, is announced by the Westinghouse Electric & Manufacturing Co. Capable of making complete tests up to 125 amperes, 500 volts A.C., the analyzer is in reality a miniature portable three-phase switchboard panel in a carrying case complete with all necessary switching equipment, transformers and resistors. The unit contains a triple scale ammeter 0-5, 0-25, and 0-125 amperes, a triple range voltmeter 0-150, 0-300, and 0-600 volts, a polyphase wattmeter with three scales for the above voltage and current ranges, and a polyphase power factor meter with 10-100-80 scale to operate on the foregoing voltages and currents. The instruments are of a newly designed miniature type with standard size mechanism having high overload capacity and low energy consumption. The scales of the instruments are 3½ inches long.

Lufkin Wiper Removes Oil as Line Is Wound on Reel

Tape Wiper No. 599 announced by the Lufkin Rule Co., Saginaw, Mich., is a sturdy, and compact attachment, fitting all Lufkin oil gaugers' tapes. It

wipes the oil from the line as it is wound on the reel. This wiper is said to have been designed with the aid of suggestions from practical oil men in various fields.

The tension of the wiper pads is regulated by a thumb screw, which is headed so it cannot become lost. With it the tape line can also be held at any point. The pads are easily replaced, and six extra ones are packed with each wiper. The position in which wiper is placed on the tape frame is shown in the accompanying illustration. It can be so assembled in the fields on old tapes, and when wanted on new tapes it is necessary only to specify "with wiper," and they are supplied so assembled.

NEW ARC WELDING HANDBOOK

"Procedure Handbook of Arc Welding Design and Practice," published by the Lincoln Electric Co., Cleveland, Ohio, contains 434 pages, with about 500 illustrations and drawings. The book is divided into eight sections, each dealing with an important phase of arc welding and its application in a clear, concise manner, illustrated with detailed drawings and photographs.

Developments of the last few years in arc welding have made most available books on the subject obsolete. The new "Procedure Handbook" contains the latest developments in this field. It is prepared not only for the use of all welders and heads of welding departments but for those responsible for the design of products which may be built by welding. The data included on procedure, speeds and welding costs are particularly valuable.

The eight sections of the book cover "Welding Methods and Equipment," "Technique of Welding," "Welding Procedure, Speeds and Costs," "Structures and Properties of Weld Metal," "Weldability of Metals," "Designing for Arc Welded Steel Construction of Machinery," "Design for Arc Welded Fabrication of Steel Structures," and "Typical Applications of Arc Welding in Manufacturing Construction and Maintenance."

The book, convenient for either desk or shop use, is 5¾ by 9 inches, bound in semiflexible simulated leather embossed in gold and has a comprehensive index. It is sold for $1.50, domestic postage prepaid. Foreign postage, 35 cents.

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Automatic electrical water heaters for industrial use is the subject of a folder prepared by the General Electric Co.

MARKET RECORD OF OIL SECURITIES

NEW YORK, Oct. 7.—Earning reports of oil companies for third quarter the first of which will be announced within the next week or 10 days are certain to show a substantial improvement over the first and second quarters in most cases. One large integrated organization which has shown consistent earnings during the depression but which reported a loss for the second quarter is said officially to have returned to the black side of the ledger in June with continued improvement in August and September.

At the start of the third quarter 36 gravity crude oil in the Mid-Continent was posted at 44 cents per barrel. This has since been increased to $1. This is particularly important to certain independent organizations whose main operations center in the production of crude oil. Some of these companies do not have refining and marketing facilities. The tank car prices on gasoline in the several refining centers have advanced from 1½ to 2½ cents per gallon and the average increase in tank wagon and service station prices has been in excess of 2 cents per gallon since the middle of the summer. The increase in service station prices for gasoline is of direct importance to the larger companies. It is pointed out in this connection that an increase of 2 cents per gallon in the price to consumers in this country means an additional revenue to the oil industry of approximately $1,000,000 daily. There have also been advances in other refinery products.

Atlantic Refining

"Atlantic Refining Co.," says the Philadelphia Financial Journal, "will show distinctly better earnings in the third quarter than it did in either of the preceding quarters. Rising prices in the company's territory, coming at the peak of the gasoline consuming season, helped to raise operating profits from the previous low levels. Since June, Atlantic has been operating at a fair profit. The June results were responsible for all of the profits the company showed in the second quarter, results for that month canceling losses sustained in April and May, when gasoline prices were low.

"The advance in gasoline prices helped Atlantic, both in the operating figures and in inventory. For the six months' period Atlantic showed an inventory loss of $901,000. This loss should be materially reduced, if not eliminated. In addition, during a period of rising prices, Atlantic's policy of first withdrawing from storage the oil purchased, results in increasing the profit margin, providing, of course, gasoline prices move with crude prices.

"During the third quarter Atlantic had two gasoline price advances, the first the elimination of the 2-cent discount for cash and the second a one-half cent advance in September. These two advances brought selling prices well above the second quarter levels.

"The Philadelphia area, however, has lagged behind other sections in the gasoline price advances. Several oil units in the area have persisted in selling at prices which appear to be below costs. While the oil code is designed to eliminate such practices, accounting methods will not be organized for many months to the point where any help from this quarter may be expected. In the meantime, the spread between selling prices of these units and those of the major companies prevents further price advances in line with those of other cities. This situation prevails only in the Philadelphia area, which of course, is Atlantic's main selling territory. In other districts, Atlantic has done better, but the company's volume there is smaller."

Columbia Gas

Columbia Gas & Electric Corp. has declared a dividend of 12½ cents in convertible preference stock on the common, and the regular quarterly dividends of $1.25 on the 5 per cent, $1.50 on the 6 per cent, and $1.25 on the 5 per cent convertible preferred stocks, all payable November 15 to stock of record October 20. Previous common declaration was 20 cents quarterly.

The company issued the following statement:

"The dividend on the common stock is a reduction from the rate of the last previous declaration. During the past several months the operating utility companies of Columbia system have showed increased quantities of gas and electricity sales but the revenues derived from these sales have not increased sufficiently to offset increased tax burdens imposed by the various states and the Federal Government since May 1 of this year.

"The Columbia system companies have subscribed to the code for the gas and electric operating industry filed with the National Recovery Administration in support of the Federal Government's effort to aid business recovery. The immediate effect of compliance with these codes on the operating companies have been to increase their operating expenses."

Lone Star Gas

Lone Star Gas Corp. has declared the regular quarterly dividend of $1.62 on the 6½ per cent preferred stock, payable November 1 to stock of record October 14.

Salt Creek Producers

Salt Creek Producers Association declared the regular quarterly dividend of 20 cents, payable November 1 to stock of record October 14. Three months ago the quarterly rate was reduced to 20 cents from 25 cents.

Twenty Representative Stocks

The Oil and Gas Journal's Weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Mar. 29	12.35	July 5	25.20
Apr. 5	12.60	July 12	25.74
Apr. 12	12.04	July 19	24.89
Apr. 19	14.82	July 26	22.25
Apr. 26	15.80	Aug. 2	20.29
May 3	16.14	Aug. 9	22.29
May 10	17.22	Aug. 16	21.05
May 17	20.29	Aug. 23	23.46
May 24	18.00	Aug. 30	24.04
May 31	20.51	Sept. 6	24.68
June 7	21.53	Sept. 13	25.45
June 14	25.44	Sept. 20	25.28
June 21	23.09	Sept. 27	23.01
June 28	23.86	Oct. 4	23.29

Oil Survey in China; Kettle Type Refineries

J. E. Johnson writes to The Oil and Gas Journal from Shanghai, China:

"In northern China Leo Pao, who is a member of Shensi Province government, has been doing some work on the oil possibilities in this province. His work has been greatly handicapped due

Independent Oils on New York Curb

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ended October 6)

1933 High	1933 Low	Week ended October 6 — Sales	High	Low	Close	Stocks		Outstanding capital	Par value	Div. rate	Payable or last paid	1930 High	1930 Low	1931 High	1931 Low	1932 High	1932 Low
2⅜	⅛	7,500	1⅜	1⅛	1¼	American Maracaibo	(sh)	700,000	N.P.	....	.....	4½	½	1¾	¼	¾	¼
5½	1½	100	1¾	1¾	1¾	Arkansas Natural Gas	(sh)	4,084,225	N.P.	....	.....	16¾	4⅛	6½	1⅞	3¾	⅝
4	1	2,800	1½	1⅜	1⅜	Arkansas Natural Gas "A"	(sh)	3,522,521	N.P.	....	.....	16⅝	4⅝	6¾	1⅞	3⅜	½
4⅞	2	500	2½	2½	2½	Arkansas Natural Gas pfd.	(sh)	2,193,000	$10	....	4- 1-32	8⅛	6¼	7	3⅞	5⅝	1½
14½	6¼	No sales ..	..	..	..	British American Oil Corp.	(sh)	2,022,642	N.P.	20cQ	3-14-33	23	13⅜	16⅞	6¼	9¾	6¾
7¾	¼	8,500	4¼	3⅞	4	Carib Syndicate	(sh)	579,000	25c	....	.....	2¾	⅝	2⅜	⅛	¾	¼
6¼	2	25,800	2⅜	2¼	2⅜	Cities Service	(sh)	36,979,065	N.P.	....	6- 1-32	44¼	13	20¾	5	6⅞	1¼
30	10½	400	13½	12	13½	Cities Service pfd.	(sh)	1,125,931	N.P.	....	6- 1-31	93⅞	78¼	84¾	35⅝	53⅜	10
2½	⅝	300	1⅜	1¼	1⅜	Columbia Oil & Gasoline v.t.c.	(sh)	$2,000,000	$1	....	.....	¾	⅛	½	1/16	2⅛	½
4	¼	1,400	2	1⅝	1¾	Colon Oil	(sh)	2,200,000	N.P.	....	.....	8¼	1⅛	3½	⅛	1¼	¼
2⅞	1	100	1½	1½	1½	Consolidated Royalty Oil Co.		$5,527,880	$10	5cQ	1-25-33	5⅞	2	2¾	1	2	1
7½	⅞	1,400	3⅛	2⅞	3	Cosden Oil	(sh)	323,950	N.P.	....	.....	7⅛	1¼	3¾	⅜	2⅞	¼
7¼	2⅛	1,600	6½	5⅝	6½	Darby Petroleum	(sh)	609,696	N.P.	....	10-15-30	21¾	4¼	5	1¾	7⅛	1⅝
2¾	⅞	100	1⅝	1⅝	1⅝	Derby Oil & Refining	(sh)	500,000	N.P.	....	.. ..	11	2	6	1½	3	1
62	24	2,900	54¾	52½	53	Gulf Oil Corp.	(sh)	4,504,921	$25	....	10- 1-31	166⅞	58½	75½	25⅜	44¾	23
6½	1¼	500	2¾	2¾	2¾	Indian Terr. Illum. Oil "B"	(sh)	7,090,037	N.P.	....	.....	53½	12⅝	16⅞	5	4½	1½
2	⅝	No sales ..	..	..	..	Kirby Petroleum	(sh)	750,000	N.P.	10c	4-15-33	3	⅞	1⅞	¼	1	⅜
1½	⅛	4,900	⅛	½	½	Leonard Oil & Development		$50,000,000	$25	....	.....	5	¾	2	½	¾	⅛
2¼	⅛	1,700	1¾	1¾	1¾	La. Land & Exp.	(sh)	3,000,000	N.P.	....	.....	4¾	½	1½	¼	2½	½
9½	1¼	500	7¼	6½	6½	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	29	4⅞	6¾	1½	3½	⅞
12⅞	4⅜	700	7½	7	7	Lone Star Gas	(sh)	5,000,000	N.P.	16cQ‡	3-31-33	55⅞	19⅝	25	5½	11	3⅜
6½	2⅛	100	3¾	3¾	3¾	Memphis Natural Gas	(sh)	920,000	N.P.	....	4-15-32	22¼	7½	12⅛	4½	5¼	1⅝
5	2	No sales ..	..	..	..	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	7½	1⅜	4⅞	1½	3⅜	1½
1¾	¼	100	½	½	½	Mountain & Gulf		$4,000,000	$1	....	4-15-31	¾	⅜	½	⅛	⅜	⅛
6½	2½	1,500	5¼	4⅝	5	Mountain Producers		$1,682,182	$10	20cQ	4- 1-33	12⅛	3¾	5⅞	2	4¾	2¼
20	10	1,800	14¼	14	14	National Fuel Gas	(sh)	3,810,183	N.P.	25cQ	1-16-33	41⅜	19⅜	26½	9¾	14⅝	8
1¾	½	200	1¾	1¾	1¾	New Bradford Oil		$7,224,186	$5	....	4-15-31	3½	1⅛	1½	½	⅞	⅜
1⅞	½	No sales ..	..	..	..	New Mexico and Arizona		$1,000,000	$1	....	.....	7¼	1½	3	¾	1¼	⅜
5	½	No sales ..	..	..	..	North Central Texas	(sh)	262,446	$5	....	9- 2-30	11¼	2⅛	3¼	⅝	1½	⅝
½	1/16	No sales ..	..	..	..	North European Oil	(sh)	1,372,391	N.P.	....	.....	6¼	⅝	2⅛	¼	⅜	1/16
7½	3	No sales ..	..	..	..	Pacific Western Oil	(sh)	1,000,000	N.P.	....	.....	19½	5½	15	2⅞	8	3
1⅛	¼	1,300	⅞	⅝	⅞	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	5⅜	1	3⅛	¼	½	1/16
2¼	¼	200	¾	¾	¾	Richfield Oil pfd. x.w.	(sh)	399,950	$25	....	.....	23½	6½	11	¼	1	⅛
4¼	⅝	No sales ..	..	..	..	Ryan Consolidated	(sh)	296,931	N.P.	....	.....	8⅝	2	3	¾	2⅛	⅝
1	⅝	200	½	½	½	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	2½	½	1⅜	⅛	⅞	⅛
9¼	3½	800	6⅜	6	6⅛	Salt Creek Producers	(sh)	1,496,859	$10	25c	2- 1-33	15¼	5¼	7¾	2¾	5½	2⅞
1½	¼	400	⅞	¾	⅞	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	10	2	5¼	¼	⅝	¼
13	6¼	1,200	7⅝	7¼	7½	Texon Oil & Land	(sh)	936,036	N.P.	25c†	12-30-32	19½	8	12⅞	2½	10½	4½
1½	⅛	3,400	4⅛	3⅜	4	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	4¼	⅜	1⅞	¼	⅛	⅛
3⅜	1½	100	2	2	2	Woodley Petroleum		$500,000	$1	....	3-31-29	5	½	3½	1⅛	2⅜	1¼

*Ex-dividend. †Plus extra dividend of 25 cents. ‡Payable in stock. §Paid in lieu of regular cash dividend of 2 per cent.

to the recent war in that area but since things have quieted down he is becoming very active and plans to drill 15 wells in the near future in the northern part of Shensi Province in the area around Fushih and Yenchang. Due to transportation and the lack of roads they are planning to use small drilling rigs with gas engines and mostly native labor. It is rumored that Mr. Herzer, formerly with the Empire Oil & Refining Co. in Oklahoma, is to help him in this work. Mr. Herzer has made some surveys from the air in northern China and a geologist who has been doing work for him is now staying in Peiping, China.

"Mr. Herzer, who lives in Shanghai, has been doing some extensive exploration over a large area of China by use of the airways system and by private plane. He stated that in a few months they would be ready to do some surface geology as well as some geophysical work but states that they plan most of their work in the central and southern parts, with possibly some around Canton.

"There have been a large number of small kettle type refineries springing up over China, which have been running a yellow kerosene which they have found very much cheaper though of inferior grade, but it serves their limited needs and is increasing the demand for crude. The oil that comes in from north of China has such a high tax that it is not used but they buy what is classed as Diesel oil and refine it for kerosene. If bought for refining purposes the tax is $14 a ton but for Diesel engine purposes the tax is $2 a ton."

Standard Oil Stocks on New York Curb

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ended October 6)

1933 High	1933 Low	Week ended October 6 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1930 High	1930 Low	1931 High	1931 Low	1932 High	1932 Low
13	6	650	7	6¼	6¼	Borne Scrymser		$1,000,000	$25	....	10-15-30	25	11¼	16	6	7	6
39¾	25	No sales ..	..	..	..	Buckeye Pipe Line		$10,000,000	$50	75cQ	6-15-33	69	39⅞	56	30	35	17½
118	71	150	109⅞	109⅞	109⅞	Chesebrough Mfg.		$3,000,000	$25	$1Q‡	6-29-33	184⅞	104¼	129½	75	90	53
11	2¼	34,800	11	10	10½	Creole Petroleum	(sh)	6,974,356	$5	....	.....	7⅞	3	3⅞	1⅝	3½	1¾
41¾	20	No sales ..	..	..	..	Eureka Pipe Line		$5,000,000	$100	$1Q	8- 1-33	54¾	26	36	19	35	18
88	40	2,200	86¼	83	85	Humble Oil & Refining		$74,365,725	$25	50cQ	7- 1-33	119	57¼	72	44¼	55	35⅝
15¼	6½	2,200	13⅝	12¾	12¾	Imperial Oil of Canada	(sh)	26,557,496	N.P.	12½cQ	9- 1-33	30	15	18¼	7⅜	10⅞	6¼
8	3⅛	200	5¾	5	5¾	Indiana Pipe Line		$3,000,000	$10	15cS.A.	5-15-33	41	14½	21⅛	5½	7½	2¾
19⅞	8⅞	14,100	19⅝	18½	19⅝	International Petroleum	(sh)	14,247,088	N.P.	28cQ§	6-15-33	24	11⅜	15½	7⅜	12¼	8
10	5½	No sales ..	..	..	..	National Transit		$6,362,500	$12.50	35cS.A.	6-15-33	22⅝	11½	17½	5	10½	6
6⅛	4¼	300	5¼	5⅛	5¼	Northern Pipe Line		$1,200,000	$10	25c	7- 1-33	54	26¼	35½	20	5½	3⅛
22⅛	11	800	18½	17¼	17⅞	South Penn Oil		$30,000,000	$25	25cQ	3-31-33	45⅞	16⅛	23⅞	9¼	16½	9⅝
6	2¾	No sales ..	..	..	..	Southern Pipe Line		$1,000,000	$10	10cQ	3- 1-33	20⅞	8⅝	17	7	10	3¾
43	24½	No sales ..	..	..	..	Southwest Pennsylvania Pipe Line		$1,750,000	$50	$1Q	7- 1-33	64	32	42½	25	37	27
33⅞	17	15,300	31⅛	29⅜	30⅜	Standard Oil of Indiana	(sh)	15,941,895	$25	25cQ	6-15-33	59⅞	30	38½	13½	25⅛	13⅛
19¼	8⅜	1,000	16	15½	15¾	Standard Oil of Kentucky		$26,069,830	$10	25cQ	6-15-33	40½	18⅝	23⅝	12½	15⅞	8⅞
20½	11	No sales ..	..	..	..	Standard Oil of Nebraska		$4,770,550	$25	25cQ	9-20-33	48⅞	34⅝	36½	16	19	10¼
41	15½	100	26	26	26	Standard Oil of Ohio		$18,811,675	$25	37½cQ	1- 3-33	108⅛	43¼	62½	23	30⅛	15½
3	1	No sales ..	..	..	..	Swan-Finch Co.	(sh)	34,480	$25	....	1-15-29	10	4	4½	1	2	1⅝

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra. §Payable in Canadian funds.

Transactions in Oil Shares on New York Stock Exchange

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ended October 6)

1933 High	1933 Low	Week ended October 6 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1930 High	1930 Low	1931 High	1931 Low	1932 High	1932 Low
47½	18½	8,500	44¾	39¼	43	Amerada Corp.	(sh)	774,875	N.P.	50cQ	7-31-33	31½	16½	23	11¼	22¾	12
35½	6¾	No sales ..	..	..	..	Associated Oil		$34,356,180	$15	25cQ	.....	51	30	31	8¾	16½	6½
31⅞	12⅜	17,500	28⅜	25½	26½	Atlantic Refining		$67,416,050	$25	25cQ	6-15-33	51⅜	16⅝	23⅝	8⅝	21⅞	8⅜
11	3	21,400	10	8⅝	9½	Barnsdall Corp. A		$11,293,895	$5	....	5-11-31	34	8⅝	14½	4	7	3⅜
28⅛	9	92,200	16⅝	13⅜	14	Columbia Gas & El.	(sh)	11,684,220	N.P.	20cQ§	5-15-33	87	30⅝	45⅝	11⅝	21	4¼
12	5¼	No sales ..	..	..	..	Colonial Beacon Oil	(sh)	1,444,970	N.P.	....	12-22-22	20⅜	8⅜	10½	7½	12½	9
15¾	5	75,000	14	13	13⅛	Consolidated Oil Corp.	(sh)	14,218,835	N.P.	....	.....	..	..	..	..	9	4
19⅝	4⅞	25,700	18⅛	16⅜	17¼	Continental Oil of Delaware	(sh)	4,738,593	$5	....	12-15-27	30½	7¾	12	5	9⅜	3⅝
43¼	13¾	8,900	32½	30⅛	31½	General American Transportation		751,638	N.P.	25cQ	1- 2-33	111⅞	53⅛	73⅛	28	35¾	9½
27	4⅝	4 800	18⅜	16¼	17⅛	General Asphalt	(sh)	413,333	$10	....	6-15-32	71½	22⅜	47	9⅝	15½	4¾
38	8¼	2,500	28⅝	26	26½	Houston Oil		$24,968,600	$100	....	10-17-30	116⅞	29¼	68½	15¾	28¼	8¾
4½	1⅛	200	3	3	3	Indian Refining		$12,564,070	$10	....	10- 1-30	17	2	4⅝	1⅛	2¾	1
..	..	No sales ..	..	..	..	Louisiana Oil Refining	(sh)	1,309,069	N.P.	....	.....	12	3½	4½	1	2¼	½
4	½	400	2¾	2⅝	2¾	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	10⅜	1⅜	3¾	½	1½	⅜
16	3¾	5,100	13¼	12¼	12⅜	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	32	11	16¾	5	8⅞	3¾
28⅝	5	100	14	14	14	National Supply of Delaware	(sh)	390,879	$25	....	5-15-31	124¾	60	70¼	5	13	3½
17⅝	4¾	29,200	16¾	14⅝	15½	Ohio Oil	(sh)	6,562,005	N.P.	....	12-15-32	32	16	19½	5⅛	11	5
14	8	100	8½	8½	8½	Pan American P. & T.	(sh)	3,416,082	$5	....	3-15-33	46½	42	35⅛	20	14	6
4¼	⅜	1.600	2⅛	1⅜	1¾	Panhandle P. & R.	(sh)	198,770	N.P.	....	.....	12¾	1¾	4¼	⅝	1¼	¼
18¾	4¾	17,600	16¾	15⅛	16	Phillips Petroleum	(sh)	4,156,908	N.P.	....	1- 2-31	44⅝	11½	16⅝	4	8⅛	2
1⅞	¼	1,700	1	⅞	1	Pierce Oil Corp.		$29,622,831	$25	....	.....	2½	½	1½	¼	¾	¼
2¾	⅝	1,600	2	1⅜	1⅞	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	7⅛	1⅛	3⅜	½	1⅝	½
17⅝	6¾	7,300	15	13½	14½	Plymouth Oil Co.	(sh)	1,050,000	$5	75cA	.....	..	..	..	..	12½	8½
..	..	No sales ..	..	..	..	Prairie Oil & Gas		$61,035,800	$25	....	3-31-31	54	11¼	20⅜	4⅛	9½	3½
22	7	No sales ..	..	..	..	Prairie Pipe Line		$101,250,000	$25	....	6-30-31	60	16⅝	26½	5⅞	12¼	5½
2⅞	¼	1,200	1¼	1	1⅛	Producers & Refiners		$37,438,950	$50	..	9-15-23	11⅞	1	6	1	1⅝	⅛
13	3	No sales ..	..	..	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	40	11½	16	3	9¾	1
15⅜	2½	28,200	13¾	12⅜	13½	Pure Oil		$75,959,250	$25	....	9- 1-30	27¼	7⅝	11⅞	3¼	6½	2⅞
37⅜	17⅝	1,500	35⅜	35⅛	35⅛	Royal Dutch Am.	(sh)	611,303	....	80½ct†	8- 5-32	56½	36⅞	42⅝	13	23⅜	12⅛
43⅜	15	42,700	42⅜	37½	40½	Seaboard Oil of Delaware	(sh)	1,204,460	$4	15cQ	9-15-33	37	9¾	20¾	5½	20⅜	6⅝
24⅜	11¼	No sales ..	..	..	..	Shell Transport & Trading Co.		£23,985,000	£1	53c†	7-22-32	48⅜	26	34	5	16⅝	8
11⅝	4	8,200	8⅝	7¾	8	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	25½	5¼	10¼	2½	8¾	2½
61	28½	700	54	52½	54	Shell Union Oil pfd.	(sh)	400,000	$100	....	7- 1-31	106¼	55	78	15	65¼	18
12⅜	4⅞	600	10	9½	9⅝	Simms Petroleum	(sh)	600,000	$20	25cQ	1-16-32	37	5⅝	11	3½	7½	3¼
9⅞	3	1,000	8	8	8	Skelly Oil		$27,441,250	$25	....	12-15-30	12	10⅛	12⅞	2	5¾	2½
57½	22	100	55⅛	55⅛	55⅛	Skelly Oil pfd.	(sh)	119.800	$100	....	5- 1-31	99¾	42	62	10	33½	12
15½	6	53,800	12½	11¼	11¾	Socony-Vacuum		$792,711,738	$25	....	3-15-33	106⅜	98	106	87⅛	12¼	5¼
102¾	92½	1.200	100½	100	100	Standard Oil Export pfd.	(sh)	764,885	$100	$2.50SA.	12-31-32	..	..	21	8⅜	100½	81
44⅞	19½	31,500	42½	38½	41⅝	Standard Oil of California	(sh)	13,102,900	N.P.	25cQ	6-15-33	75	42½	51¾	23⅛	31⅞	15⅛
35	12¾	1,000	32	30	30	Standard Oil of Kansas		$8.000.000	$25	....	3-16-31	49	14⅜	19	7¾	16½	7
43⅞	22¾	68.000	42⅛	39⅛	42⅛	Standard Oil of New Jersey		$637,961,700	$25	50cSA	6-15-33	84⅞	32½	52½	26	37⅜	19⅞
50	35	1.100	47⅛	46½	46½	Sun Oil	(sh)	1,531,422	N.P.	25cQ	6-15-33	70	39	45¼	26¾	39⅞	24⅝
4½	¾	1,700	3	2¾	2¾	Superior Oil Corp.	(sh)	776.979	N.P.	....	12-20-30	9⅜	¾	1¾	¼	2	¼
30⅛	10¾	24.900	27⅞	25¾	27	The Texas Corporation		$246,204,900	$25	25cQ	7- 1-33	60½	28¼	36¼	9⅞	18¼	9¼
6½	1⅜	1,900	3⅞	3⅝	3⅞	Texas Pacific Coal & Oil Co.		$9,304.890	$10	....	12-31-29	14½	4	6½	1⅞	4	1½
19	9¼	No sales ..	..	..	..	Tide Water Oil	(sh)	2,190,323	N.P.	....	12-31-32	31	13	18	9⅞	10	5
73	45	100	73	73	73	Tide Water Oil pfd.	(sh)	199,446	N.P.	....	2-15-33	94⅞	71	83	30	62	30
11¾	3⅛	36,000	11¼	10⅜	10⅜	Tide Water Associated	(sh)	5,611,100	N.P.	....	2-16-31	17¾	5⅞	9	2⅛	5⅝	2
55	23½	800	54½	53	54¼	Tide Water Associated pfd.		$73,284.500	....	....	1- 1-33	89¾	55	68	20½	60	20
23⅞	8½	8.300	21⅜	19⅛	20½	Union Oil of California	(sh)	4,386,070	$25	25cQ	8-10-33	50	10⅛	26⅝	11	15⅜	8
22¾	10½	1,200	18¼	17⅝	18¼	Union Tank Car	(sh)	1,254,048	N.P.	30cQ	6- 1-33	38½	23	25⅛	16	19¼	11¾
4⅞	⅝	800	2½	2⅛	2⅛	Warner-Quinlan	(sh)	632.948	N.P.	....	7- 1-30	27	4¼	7⅜	⅞	2¼	½
5½	2	800	3⅜	2⅞	3⅛	Wilcox Oil & Gas	(sh)	428,967	$5	...	5-10-28	21	6½	9⅜	2¾	8¾	2¾

*Ex-dividend. †Interim dividend for 1931. §Payable in 5% convertible preferred stock. A—Paid this year; no regular rate.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Oklahoma-Kansas and Eastern Monthly Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for August Runs

Company—	Month (Bbls.)	Dy.av. (bbls.)
Gulf Pipe Line Co.	1,545,803	49,865
Texas P. L. Co.	663,618	21,407
Empire P. L. Co.	2,637,662	85,086
Magnolia P. L. Co.	1,428,449	46,079
Cosden P. L. Co.	1,003,911	32,384
Stanolind P. L. Co.	3,720,000	120,000
Oklahoma P. L. Co.	2,899,328	93,511
Other lines	8,940,437	288,401
Total August	22,838,708	736,733
Total July	22,588,914	728,675
Difference	249,794	8,058

Shipments

Gulf P. L. Co.	1,424,208	45,942
Texas P. L. Co.	1,020,156	32,908
Empire P. L. Co.	2,067,140	66,682
Magnolia P. L. Co.	1,333,366	43,012
Cosden P. L. Co.	864,051	27,873
Stanolind P. L. Co.	4,086,048	131,808
Oklahoma P. L. Co.	2,856,048	92,130
Other lines	6,231,000	201,000
Total August	19,882,017	641,355
Total July	19,042,214	614,265
Difference	839,803	27,090

Stocks

Sinclair Prairie Oil Mktg. Co.*	30,086,000
Gulf P. L. and Gypsy Oil Co.	7,853,347
Texas Co.	4,269,767
Empire P. L. Co.	5,829,017
Mid-Continent Pet. Corp.	2[illegible] 41
Magnolia Pet. Co.	7,240,445
Stanolind Crude Oil Pur. Co.	13,897,000
Oklahoma Pipe Line Co.	1,193,668
Carter Oil Co.	2,569,467
Other lines	18,949,000
Total August	94,496,755
Total July	92,846,178
Difference	1,650,577

*Estimated. Stanolind Pipe Line Co. shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF AUGUST

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for July and August.

	July,'33	Aug.'33
Nat. Transit	262,295.94	293,692.99
S.W. Pa. P. L.	72,218.82	76,067.40
Eureka P. L.	264,404.95	295,275.78
Buckeye P. L.: (Macksburg)	237,327.67	269,935.92
Buckeye P. L.: (Cleveland)	9,574.43	9,876.43
Buckeye P. L.: (Lima, etc.)	72,331.96	69,549.50
Indiana P. L.	384.99	.....
Sioll Oil Ref.	22,825.00	22,362.00
Bradford Trans.	400,405.63	417,513.29
N. Y. Transit	30,516.50	34,385.73
Tide Water P. L.	22,977.47	24,577.07
Pure Oil	438,491.31	598,006.18
Daugh'ty Ref.	773.00	693.00
Valvoline Pipe	67,066.18	70,144.21
Other Co.'s	209,521.59	221,590.66
Total	2,117,120.44	2,403,640.6
Daily av.	68,100.66	77,537.75

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July,'33	Aug.'33
Nat. Transit	577,524.36	582,723.99
S.W. Pa. P. L.	501,023.24	511,384.48
Eureka P. L.	300,933.77	314,996.05
Buckeye P. L.: (Macksburg)	248,669.59	248,558.29
Buckeye P. L.: (Cleveland)	1,699.42	1,220.18
Buckeye P. L.: (Lima, etc.)	1,569,787.77	1,903,967.74
Indiana P. L.	949,511.94	904,426.56
Bradford Trans.	599,096.33	423,748.33
Southern P. L.	29,617.80	29,650.72
Tuscarora	225,665.20	223,982.72
N. Y. Transit	202,428.77	193,146.52
Northern P. L.	179,432.96	52,131.91
Tide Water P. L.	530,127.92	445,493.04
Pure Oil	480,288.98	478,707.32
Valvoline	33,675.22	44,884.64
Other Co.'s	186,465.87	185,817.95
Total	6,615,950.15	6,544,839.84
Daily av.	213,417.74	211,123.87

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of July and August:

	July,'33	Aug.'33
Nat. Transit	525,495.84	453,510.86
S.W. Pa. P. L.	311,751.17	295,326.83
Eureka P. L.	825,660.36	880,281.02
Buckeye P. L.: (Macksburg)	324,903.72	313,124.89
Buckeye P. L.: (Cleveland)	43,629.53	51,226.10
Buckeye P. L.: (Lima, etc.)	2,504,596.66	2,367,071.45
Indiana P. L.	493,802.23	456,069.03
Bradford Trans.	104,983.07	102,939.12
Southern P. L.	117,651.19	115,703.90
Tuscarora	7,663.87	6,554.87
N. Y. Transit	80,712.06	107,479.33
Northern P. L.	212,974.54	180,551.08
Tide Water P. L.	739,168.82	717,118.05
Pure Oil	186,992.17	346,362.12
Valvoline	120,962.59	113,558.02
Other Co.'s	112,994.47	110,399.93
Total	6,713,942.29	6,617,276.60
Decrease	52,095.94	96,665.69

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of July and August, showing gross stocks of the above fields:

	July,'33	Aug.'33
Pennsylvania	2,511,444.87	2,429,211.07
Lima	465,442.43	474,151.66
Kentucky	400.92	.....
Mid-Continent	3,600,234.60	3,416,673.22
Illinois	10,549.85	9,946.43
Michigan	125,869.52	287,294.22
Total	6,713,942.29	6,617,276.60

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1930	1931	1932	1933
January	75,907	53,939	53,501	64,493
February	79,256	55,163	55,498	58,140
March	76,688	54,331	57,199	59,417
April	84,536	54,914	57,348	61,812
May	70,546	53,344	59,105	65,755
June	75,430	54,110	64,371	67,370
July	68,921	50,723	63,402	68,100
August	54,291	51,503	67,676	77,537
September	56,595	61,346	65,423	.....
October	58,170	65,595	65,960	.....
November	52,332	59,810	60,602	.....
December	53,999	61,835	57,401	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1930	1931	1932	1933
January	217,623	175,269	186,561	198,996
February	224,355	183,494	169,856	187,928
March	228,846	189,508	188,793	183,632
April	241,845	191,450	202,036	181,940
May	248,383	199,247	201,404	199,671
June	234,401	221,155	201,632	211,980
July	207,094	211,632	202,859	213,417
August	205,506	224,166	187,839	211,123
September	193,999	217,537	170,524	.....
October	157,675	210,831	188,504	.....
November	146,638	196,425	189,626	.....
December	143,001	176,241	186,135	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1931	1932	1933
January	11,831,092	9,023,914	7,608,270
February	11,506,489	8,974,350	7,302,746
March	11,012,162	8,802,192	7,279,843
April	11,044,481	8,908,461	7,212,548
May	10,728,239	8,835,726	7,016,621
June	9,903,349	8,732,724	6,766,038
July	9,569,849	8,176,956	6,713,942
August	9,192,457	8,128,576	6,617,270
September	8,492,431	7,895,421	.....
October	8,417,694	7,421,620	.....
November	8,830,386	7,116,200	.....
December	9,119,032	7,139,420	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, September 1	539,069.51
Runs from wells	455,221.27
Other receipts	25,727.65
Regular deliveries	405,246.25
Other deliveries	57,312.19

The amount of Illinois oil run by the Tide Water Pipe Co. in July was 24,577.07 bbls. Deliveries were 25,931.65 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1933— August	479,798.34	431,176.90
1932— January	500,177.12	246,634.10
February	482,561.50	186,010.30
March	565,538.70	270,617.75
April	461,920.92	285,817.98
May	521,884.64	279,859.88
June	501,878.26	263,703.70
July	466,635.89	284,537.18
August	476,095.53	307,325.89
September	436,529.00	329,994.39
October	332,680.67	352,620.34
November	346,880.27	338,351.23
December	336,072.57	317,749.62
1933— January	344,054.84	314,108.93
February	306,520.61	294,340.35
March	385,665.57	314,514.48
April	311,146.72	356,455.50
May	361,901.38	334,420.38
June	420,865.87	350,984.36
July	455,997.46	428,608.53

Tide Water Pipe Co., Ltd., also delivered in August, 92,871.24 bbls. Oklahoma oil.

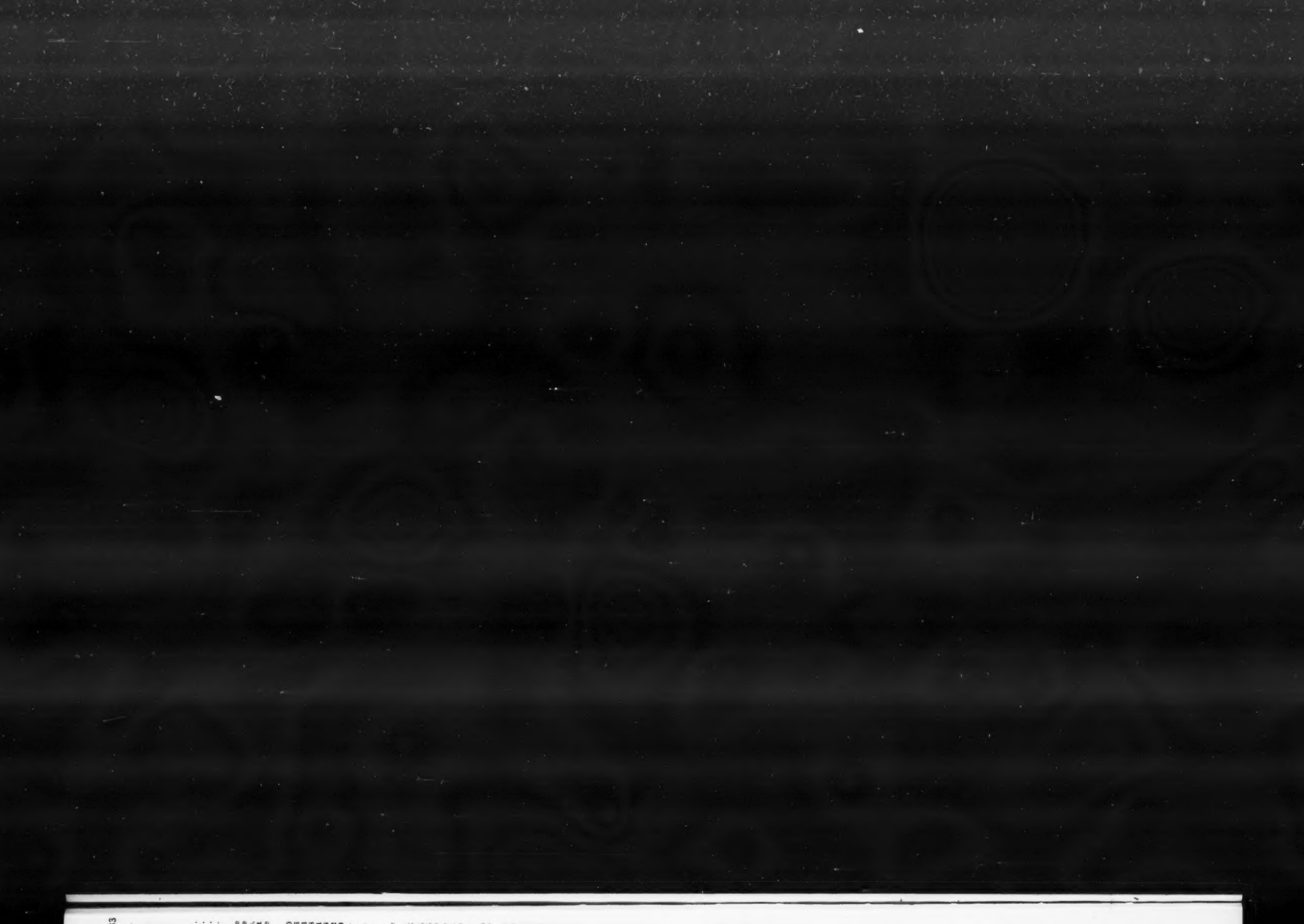
Average Daily Imports of Crude and Refined Oil at Principal United States Ports

Average barrels per day in 1932-33—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
September	5,100	2,300	57,900	12,167	10,066	87,433	.....	.....	.....	.....	.....	87,433
October	14,833	.....	73,193	30,645	7,139	124,000	.....	.....	.....	.....	2,000	126,000
November	14,167	.....	49,967	19,233	8,900	92,267	.....	.....	.....	.....	2,133	94,400
December	14,258	2,065	84,323	28,162	9,256	138,064	.....	.....	.....	.....	5,226	143,290
January	7,644	4,355	64,194	26,710	6,613	108,516	.....	.....	.....	.....	548	109,064
February	7,852	4,789	120,490	12,610	10,833	156,393	.....	.....	.....	.....	2,357	158,750
March	7,710	4,290	101,258	36,292	16,000	165,290	.....	.....	.....	.....	.....	165,290
April	10,000	6,700	73,433	32,267	9,967	132,367	.....	.....	.....	.....	.....	132,367
May	4,258	2,194	62,484	22,548	3,355	94,839	.....	.....	.....	.....	4,355	99,194
June	4,833	.....	46,967	29,967	5,233	87,000	.....	.....	.....	.....	.....	87,000
July	10,645	2,452	91,258	33,161	2,968	140,484	.....	.....	.....	.....	6,194	146,678
August	13,774	2,452	112,193	33,484	6,742	168,645	.....	.....	.....	.....	2,161	170,806

Average Daily Receipts of California Crude and Refined Oil at Atlantic and Gulf Ports

Average barrels per day in 1932-33—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
September	2,900	.....	5,000	11,633	7,967	27,500	.....	.....	.....	.....	.....	27,500
October	2,387	1,226	14,452	9,355	9,193	36,613	.....	.....	.....	.....	.....	36,613
November	4,667	.....	21,700	7,767	2,366	36,500	.....	.....	.....	.....	.....	36,500
December	4,129	.....	15,678	5,322	8,226	33,355	.....	.....	.....	.....	4,903	38,258
January	968	1,484	20,903	3,742	18,064	45,161	.....	.....	.....	.....	.....	45,161
February	9,106	1,643	14,250	10,965	11,500	47,464	.....	.....	.....	.....	2,643	50,107
March	5,065	.....	16,516	9,968	13,935	45,484	.....	.....	.....	.....	7,484	52,968
April	6,000	.....	14,500	7,733	4,934	33,167	.....	.....	.....	.....	4,900	38,067
May	4,194	.....	15,255	14,293	5,871	39,613	.....	.....	.....	.....	4,452	44,065
June	1,267	.....	5,300	11,767	7,667	26,000	.....	.....	.....	.....	4,938	30,933
July	3,773	.....	17,323	24,097	15,194	60,387	.....	.....	.....	.....	.....	60,387
August	2,484	1,742	12,065	15,032	7,129	38,452	.....	.....	.....	.....	.....	38,452

Gross Production of Crude Oil in the United States for 12 Months

(In barrels of 42 gallons)

1932-33—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
August:	Month	14,839,951	12,743,656	26,924,953	3,046,959	1,062,897	1,870,764	2,413,536	3,873,000	66,775,726
	Daily average	478,708	411,086	868,547	98,289	34,287	60,347	77,856	124,935	2,154,056
September:	Month	14,351,140	11,795,280	27,366,515	2,970,750	1,019,250	1,929,161	2,289,300	3,618,000	65,249,396
	Daily average	478,371	390,176	912,217	99,524	33,975	64,305	76,310	120,599	2,174,980
October:	Month	14,627,663	11,915,811	27,213,332	2,892,456	1,019,931	1,963,063	2,254,444	3,814,000	65,701,230
	Daily average	471,860	384,381	877,866	93,306	32,901	63,325	72,724	123,033	2,119,394
November:	Month	14,142,389	11,340,930	26,155,652	2,841,780	1,020,600	1,962,942	2,169,685	3,578,000	63,211,979
	Daily average	471,413	378,031	871,855	94,726	34,020	65,431	72,323	119,267	2,107,066
December:	Month	14,595,028	11,637,171	23,487,818	2,777,879	1,037,539	1,966,481	2,067,855	3,694,000	61,263,771
	Daily average	470,807	375,393	757,675	89,609	33,469	63,435	66,705	119,161	1,976,251
January:	Month	14,460,282	12,550,784	26,115,932	2,871,282	993,457	2,021,117	2,241,610	3,112,000	64,366,464
	Daily average	466,461	404,864	842,449	92,622	32,047	65,197	72,310	100,387	2,076,338
February:	Month	13,107,043	12,570,992	25,092,383	2,801,512	880,208	1,793,443	2,096,612	2,747,000	61,089,193
	Daily average	468,109	448,964	896,156	100,054	31,436	64,051	74,879	98,011	2,181,757
March:	Month	13,414,980	15,455,236	34,242,444	3,604,539	943,702	2,070,695	2,371,469	3,118,000	75,221,065
	Daily average	432,741	498,556	1,104,595	116,276	30,442	66,797	76,499	100,381	2,426,486
April:	Month	14,262,943	11,720,010	27,306,582	3,492,990	909,120	2,156,736	2,209,470	3,017,000	65,074,851
	Daily average	475,431	390,667	910,219	116,433	30,304	71,891	73,649	100,567	2,169,162
May:	Month	14,817,633	13,521,580	49,151,776	3,377,103	928,667	2,116,296	2,294,558	3,177,000	89,284,613
	Daily average	477,988	436,180	1,585,541	105,713	29,957	68,268	74,018	102,161	2,880,149
June:	Month	14,344,654	14,339,070	39,907,737	3,210,150	901,770	2,009,831	2,239,650	3,057,000	80,009,862
	Daily average	478,155	477,969	1,330,258	107,035	30,059	66,994	74,655	101,900	2,666,995
July:	Month	15,140,828	18,520,795	37,623,069	4,068,130	991,008	2,137,667	2,477,148	3,474,000	84,432,645
	Daily average	488,414	597,445	1,213,647	131,230	31,968	68,957	79,908	112,065	2,723,634
Total 12 months		172,104,534	158,021,325	370,588,693	37,855,560	11,708,149	23,998,197	27,125,337	40,279,000	841,680,795